

## **Historic, Archive Document**

Do not assume content reflects current  
scientific knowledge, policies, or practices.



Reserve  
aTC424  
.P3M8

# FINAL ENVIRONMENTAL IMPACT STATEMENT

## MIDDLE CREEK WATERSHED

### PENNSYLVANIA

U.S. DEPARTMENT OF AGRICULTURE  
SOIL CONSERVATION SERVICE  
HARRISBURG, PENNSYLVANIA

FEB. 1980



AD-33 Bookplate  
(1-68)

**NATIONAL**

**A  
G  
R  
I  
C  
U  
L  
T  
U  
R  
A  
L**



**LIBRARY**

U.S. DEPT. OF AGRICULTURE  
NATIONAL AGRICULTURAL LIBRARY

MAY 7 1982

CATALOGING = PREP.

USDA-SCS-EIS-WS-(ADM)-80-1-(F)-PA

MIDDLE CREEK WATERSHED PROJECT  
Snyder, Mifflin and Union Counties, Pennsylvania

FINAL ENVIRONMENTAL IMPACT STATEMENT

Graham T. Munkittrick, State Conservationist  
Soil Conservation Service

Sponsoring Local Organizations:

Snyder Conservation District,  
Snyder County Commissioners, and  
Middleburg Borough Council  
Middleburg, Pennsylvania 17842

✓ Spring Township Supervisors and  
✓ Spring Township Water Authority  
Beaver Springs, Pennsylvania 17812

✓ Pennsylvania Fish Commission and  
Pennsylvania Department of Environmental Resources  
Harrisburg, Pennsylvania 17120

FEBRUARY 1980

PREPARED BY

UNITED STATES DEPARTMENT OF AGRICULTURE  
Soil Conservation Service  
Harrisburg, Pennsylvania 17108  
717 782-4557





## I. INTRODUCTION

This Middle Creek Watershed Environmental Impact Statement (EIS) describes the partially installed watershed project receiving Federal assistance under the authority of Public Law 83-566, 83rd Congress, 68 Stat. 666, as amended. The EIS complies with the National Environmental Policy Act of 1969 (Public Law 91-190) and the guidelines of the Soil Conservation Service, U. S. Department of Agriculture, for the preparation of environmental impact statements (42-FR-40114).

The EIS, in compliance with Section 102 of Public Law 91-190, describes the integrated use of the natural and social sciences and environmental design arts in planning the Middle Creek Watershed Project. It presents a detailed description of the planned action, the environmental impacts, and alternatives to the action.

The EIS resulted from an interdisciplinary assessment of the environment of the watershed that involved interagency consultation and public input. During project planning the interdisciplinary assessment team anticipated the impacts of the proposed project. Therefore, all acreages and structural data are subject to minor revisions during the final design. If major changes warrant, a supplement or a revised environmental impact statement will be prepared.

An application for planning assistance for the Middle Creek Watershed under the provision of Public Law 566 was made in August 1959 by the Snyder Conservation District, Snyder County Commissioners and the Middleburg Borough Council. Authorization for planning was received on October 5, 1962.

The planned project described in this statement consists of the structural measures remaining to be installed and a program for land treatment. Federal assistance provided by this project includes technical assistance for the design and installation of land treatment measures and funds for design and construction of structural measures. The sponsors of the program provide landrights for the project and share in the cost of recreation facilities. They also assume all of the water supply costs. The sponsors will own, operate, manage, and maintain these structures and develop the facilities and services required for their efficient, safe, and lawful operation.





#### E. Summary of Environmental Impacts

The Middle Creek Watershed Project has reduced annual erosion rates to 0.6 tons per acre on woodland and 2.8 tons per acre on cropland through the accelerated land treatment program. It will be further reduced to about 2.5 tons per acre on cropland with the installation of additional land treatment measures.

The project will reduce average annual floodwater damages by approximately 80 percent, or \$352,400. The reduction in floodwater stages will reduce landscape maintenance, maintain property values, and release funds for other purposes.

Installation of the project measures will provide water-based recreational opportunities. A total of 167 acres of permanent water will be impounded with the installation of PA-636 and PA-638. An additional 308 acres of land will be temporarily inundated at the maximum flood stage.

Approximately 878 acres will be committed to the installation of structural measures, including recreational facilities. Of this, 201 acres will be permanently committed to dams, spillways, permanent pools, a dike, and a floodway. The dike will displace approximately 1,800 feet of riparian habitat. The dams and pools replace 9,500 feet of stream along Middle Creek with a 143-acre lake and 3,600 feet of stream along Kern Run with a 24-acre lake.

Stream temperatures may be increased by as much as 5°F. below PA-636 with only slight increases below PA-638 during summer months due to solar heating of permanent pools. This will not affect the put-and-take trout fishery below PA-636 since normal stream temperatures exceed the tolerance level of trout during early summer. The reproducing trout population below PA-638 will not be affected by slight temperature increases.

Construction of dams, recreation facilities, dike, and floodway will temporarily expose soils to erosion forces in and near the streams. Dust, smoke, and noise will be generated during construction and traffic volumes on nearby roadways will also increase. Birds, mammals, and other wildlife will be forced to move away from construction areas during the installation period.

## F. Summary of Alternatives

The alternatives considered for the Middle Creek Watershed include:

1. Floodwater retarding dams.
2. Channel modification.
3. Floodway.
4. Nonstructural measures.
5. No project.

Numerous potential actions were studied in developing the planned project. All alternatives except the no project alternative included an accelerated land treatment program for watershed protection.

To solve flooding problems at Beaver Springs, both floodwater retarding dams and a floodway were studied. The floodway more effectively controlled flooding.

Due to the depth and size of flooding in the main damage center of Middleburg, floodwater retarding dams were investigated. Various combinations of floodwater retarding dams were studied. The three dams in the planned project most effectively reduced flooding. These structures alone did not give full protection from floods up to the 100-year storm event; therefore, additional flood protection measures were studied. The additional measures became feasible only after the potential flood levels were lowered by the dams. The alternatives for Middleburg flood protection included a dike, channel modification, a floodway, and nonstructural measures. The diking was selected as part of the planned project because it solved the flooding problems with the least economic and environmental costs.

In addition to watershed protection and flood prevention, the sponsors' objectives of providing recreational and municipal water were addressed. Sites PA-636, PA-637, and PA-638 were able to effectively hold additional water for beneficial purposes. Site PA-638, due to its close proximity to Beaver Springs, was chosen as the water supply reservoir for the town. Sites PA-636 and PA-637 were chosen as recreational reservoirs for the watershed.

## G. Agencies from whom comments have been requested:

Department of the Army  
Department of Commerce  
Department of Health, Education, and Welfare  
Department of the Interior  
Department of Transportation  
Advisory Council on Historic Preservation  
Susquehanna River Basin Commission  
Office of Equal Opportunity, U. S. Department of Agriculture  
Environmental Protection Agency  
Federal Power Commission  
Water Resources Council  
State Conservation Commission of the Pennsylvania Department  
of Environmental Resources (Governor's Designated Agency  
for Reviews and Approval of PL-566 Projects)

Page

i	Governor's Budget Office (State Clearinghouse)
	SEDA-COG (Regional Clearinghouse)
ii	Pennsylvania Game Commission
	Pennsylvania Fish Commission
1	
1	
2	
14	
15	
16	
16	
16	
16	
18	
24	
24	
27	
29	
30	
31	
33	
38	
40	
41	
59	
60	
63	
64	
65	

## TABLE OF CONTENTS

I.	INTRODUCTION
II.	SUMMARY OF PROPOSED ACTION, IMPACTS, AND ALTERNATIVES
III.	PLANNED PROJECT
	A. LAND TREATMENT MEASURES
	B. STRUCTURAL MEASURES
	C. OPERATION AND MAINTENANCE
	D. PROJECT COSTS
IV.	ENVIRONMENTAL IMPACT
	A. CONSERVATION LAND TREATMENT
	B. STRUCTURAL MEASURES
	1. Impacts on Flood Damage
	2. Impacts on Land Use
	3. Impacts on Prime Agricultural Land
	4. Impacts on Plant and Animal Resources
	5. Impacts on Water Quality
	6. Impacts on Archaeological and Historical Resources
	7. Impacts on Properties, Roads, and Utilities
	8. Economic and Social Impacts
V.	ALTERNATIVES
VI.	SHORT-TERM USES VERSUS LONG-TERM PRODUCTIVITY
VII.	IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES
VIII.	CONSULTATION AND REVIEW WITH APPROPRIATE AGENCIES AND OTHERS
IX.	LIST OF APPENDICES
	A. Illustrations and Definitions of Land Treatment Practices
	B. Project Map
	C. State Historic Preservation Officer Concurrence Letter
	D. Letters of Comment on the Draft Environmental Impact Statement

## ILLUSTRATIONS

### Page

#### TABLES

1.	Structural Data of Dams to be Installed	3
2.	Total Costs Remaining Structural Measures	15
3.	Effects of Structural Measures on Flooding	17
4.	Summary of Land Use and Acreage Affected by PA-636	19
5.	Summary of Land Use and Acreage Affected by PA-638	21
6.	Summary of Land Use and Acreage Affected by PA-639	22
7.	Summary of Land Use and Acreage Affected by PA-640	23

#### FIGURES

1.	Typical Dike Cross Section	5
2.	Typical Flood Wall Cross Section	6
3.	PA-639 Floodway Plan View	7
4.	PA-640 Location Map	9
5.	Proposed Recreational Development, PA-636	12
6.	Proposed Recreational Development, PA-637	13
7.	Alternative Structure Locations	34





### III. PLANNED PROJECT

#### A. LAND TREATMENT MEASURES

The sponsors, the U. S. Soil Conservation Service, and the U. S. Forest Service developed an accelerated land treatment program for the watershed with the assistance of the Bureau of Forestry, Pennsylvania Department of Environmental Resources (DER). This land treatment program utilizes the Snyder Conservation District Erosion and Sediment Control Handbook for Urbanizing Areas, the completed Snyder County Soil Survey, the published Interim Snyder County Soil Survey Report, and the SCS Technical Guide. Within this program, SCS provides technical assistance to individual land users, community groups, and units of government for developing sound conservation plans.

A March 1976 inventory indicates that about 42,000 acres or 50 percent of land in the watershed have been adequately protected from erosion. The land adequately protected includes 15,718 acres of private land, 1,225 acres of State Game Lands and 25,057 acres of State forest land. This land adequately protected under the ongoing and accelerated programs represents 64 percent of the amount originally planned. The annual erosion rates have been reduced to 0.6 tons per acre on woodland and 2.8 tons per acre on cropland. The remaining 36 percent (primarily cropland) will be applied under a continuation of the accelerated program. Erosion will be further reduced to about 2.5 tons per acre on cropland. These erosion rates are tolerable (the productivity of the land is maintained for future generations while environmental consequences are limited).

Conservation measures to be installed include practices such as strip-cropping, diversions, grassed waterways, debris basins, woodland improvement, wildlife habitat management and critical area planting. (See illustrations and definitions of these and other practices in Appendix A).

The Snyder Conservation District has set priorities for SCS assistance in reviewing erosion and sediment control plans for developments. The content and purpose of these plans are presented under Title 25, Rules and Regulations, Chapter 102, Pennsylvania Clean Streams Law, as adopted September 21, 1972. These regulations are administered by DER and require a mandatory review prior to permit issuance for all earthmoving activities which disturb more than 25 acres. Within agricultural activities, this law provides for the control of erosion and sedimentation through the implementation of a conservation plan covering each acre of land. Conservation plans, when implemented, will reduce erosion losses to acceptable levels. The Snyder Conservation District has been allowed, under an agreement with DER, to inspect earthmoving activities on behalf of DER which could lead to enforcement actions by DER under the Clean Streams Law.

Developers and others may use the technical assistance of SCS to develop erosion and sediment control plans that are technically and environmentally sound. Developers and landowners are encouraged to protect and enhance the natural landscape in their planning and management.

## B. STRUCTURAL MEASURES

### 1. Description of Individual Structures

#### Multipurpose Dams

Multipurpose dams PA-636 and PA-638 remain to be installed as part of the Middle Creek Watershed Project (see Project Map, Appendix B). The dams will control the runoff water from 38.5 square miles or 29 percent of the watershed. Site PA-636 will contain water storage for recreation and Site PA-638 will store water for municipal use. Drainage areas, allocation of storage, surface areas and structural and hydraulic data for each structure are given in Table 1.

The basic features common to the two multipurpose dams are as follows:

(a) Each dam will be constructed of compacted earthfill along with rockfill zones as appropriate.

(b) The principal spillway system will be reinforced concrete and will consist of a drop inlet control structure, a pressure-type conduit under the fill, and an energy dissipater at the outlet of the conduit. It will be self-operating for flood prevention purposes.

(c) The combination of floodwater storage and principal spillway release will contain the runoff from a 1 percent chance storm without emergency spillway flow.

(d) The combination of temporary flood storage and emergency spillway flow will handle the volume of inflow from a six-hour rainfall of approximately 25 inches.

(e) Ample borrow material will be available at the sites.

(f) The embankments, borrow areas, and earthen portions of emergency spillways will be seeded to adapted vegetation for protection from erosion and to reduce landscape resource impact.

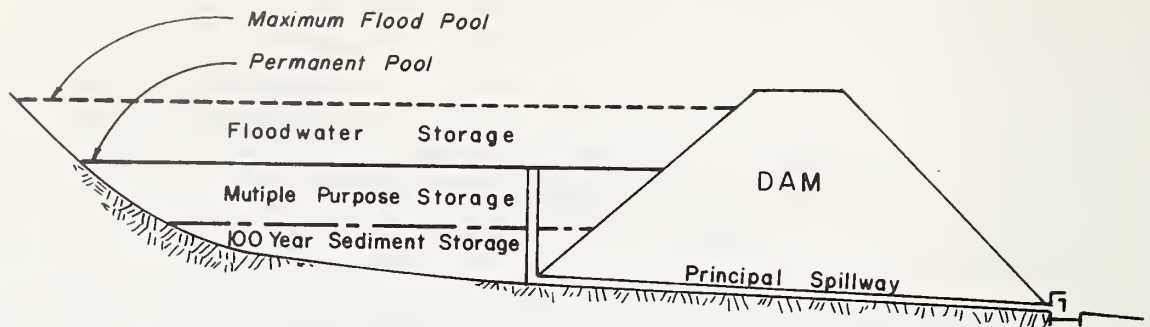
(g) Future usefulness of the dams for reducing damages will continue beyond the 100-year evaluation period. After this period, the space reserved for sediment storage is anticipated to be filled with sediment. The sediment will then begin to fill the space reserved for multipurpose use. Flood protection benefits will continue to the same extent until the multipurpose area is filled with sediment. Only when this area is filled with sediment will flood prevention benefits begin to decrease. The benefits will decrease very slowly as the flood storage area gradually fills with sediment. Refer to Table 1 for capacities of the sediment pool, multipurpose pool, and flood pool.

(h) Landscape architecture treatments and vegetative features (including the planting of trees and shrubs) will be incorporated into the design of the structures to reduce any apparent landscape resource impacts.

TABLE 1 - STRUCTURAL DATA OF DAMS  
TO BE INSTALLED  
MIDDLE CREEK WATERSHED, PA

ITEM	UNIT	PA-636	PA-638
Drainage Area	sq. mi.	33.15	5.30
Storage Capacity			
Sediment	ac. ft.	447.4	33.4
Floodwater	ac. ft.	5,000	711
Recreation	ac. ft.	240	-
Water Supply	ac. ft.	-	218
Total Capacity	ac. ft.	5,690	963
Surface Area			
Beneficial Pool	acre	143	24
Floodwater Pool	acre	425	50.0*
Volume of Fill	cu. yd.	275,000	279,600
Top of Dam Elevation	MSL	611.2	758.0
Max. Height of Dam	feet	42.0	61
Emergency Spillway's			
Crest Elevation	MSL	598.8	746.8
Bottom Width	feet	350	150
Type		rock	rock

\* These figures include the acreages in the beneficial pools.



The multipurpose dam PA-636 will be located on Middle Creek just west of PA Route 235 near Beaver Springs, Pennsylvania. The dam will be 42 feet high and contain about 275,000 cubic yards. It will store 240 acre-feet of water for recreation and create a 143 surface acre lake. A single stage principal spillway will consist of a concrete drop inlet, pipes and discharge energy dissipater. Emergency spillways will be excavated into rock in each abutment. Borrow for the dam will be obtained from the emergency spillway excavation or other adjacent areas within the site.

Multipurpose damsite PA-638 will be located on Kern Run about one-half mile south of Beavertown. The dam will be 61 feet high and contain about 279,600 cubic yards. It will store 218 acre-feet of water for municipal use and create a lake of 24 surface acres. The principal spillway will consist of a single stage drop inlet and riser, a 30-inch concrete conduit, and a concrete impact basin. The water supply intake will be separate from the principal spillway. The 150-foot wide emergency spillway will be excavated into rock on the left abutment. Borrow for the structure will be obtained from the emergency spillway excavation and from borrow areas within the floodpool.

#### Beaver Springs Floodway (PA-639)

A 30-foot wide floodway, PA-639, will protect Beaver Springs from floodwaters up to the 100-year peak discharge from a drainage area of 1.26 square mile. It will extend from the bridge on Snyder Avenue west of Beaver Springs in a northeast direction for 1,000 feet to Beaver Creek. The floodway will pass east of the Beaver Springs Milk Plant and parking facilities. The bottom of the floodway will be constructed to permit low flow (maximum of 30 cubic feet per second) to enter the old stream channel. The floodway will be 30 feet wide and have 3:1 sideslopes. A parabolic channel, 12 feet wide, and approximately 350 feet long, will be constructed to carry the low flow from the floodway to the existing stream channel. Excavated material from the channel will be placed in two dikes along the floodway with additional borrow material being excavated immediately downstream of the Snyder Avenue bridge, as needed (see Figure 3 for location sketch).

#### Middleburg Dike (PA-640)

Site PA-640 is planned as a 3,000-foot dike, beginning at Furnace Road about 200 feet west of the intersection of Furnace Road and Edmund Street in Middleburg. The dike will extend along the south side of



Figure 1

## TYPICAL DIKE CROSS SECTION

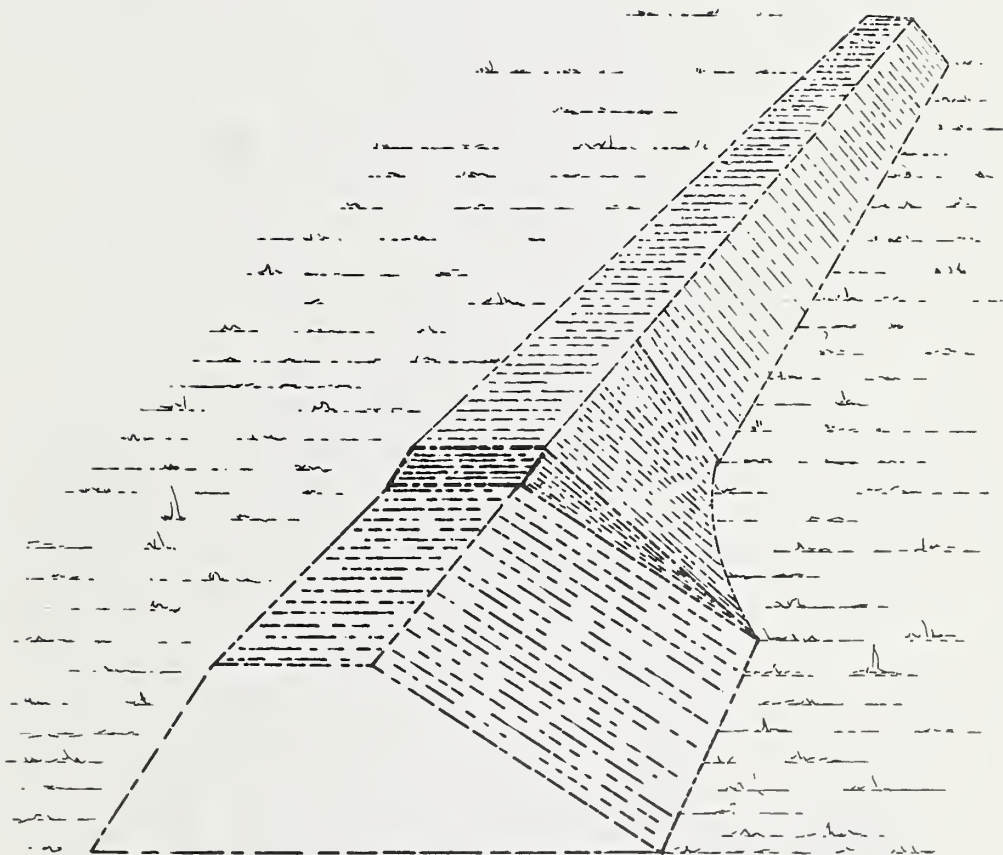


Figure 2

# TYPICAL FLOOD WALL CROSS SECTION

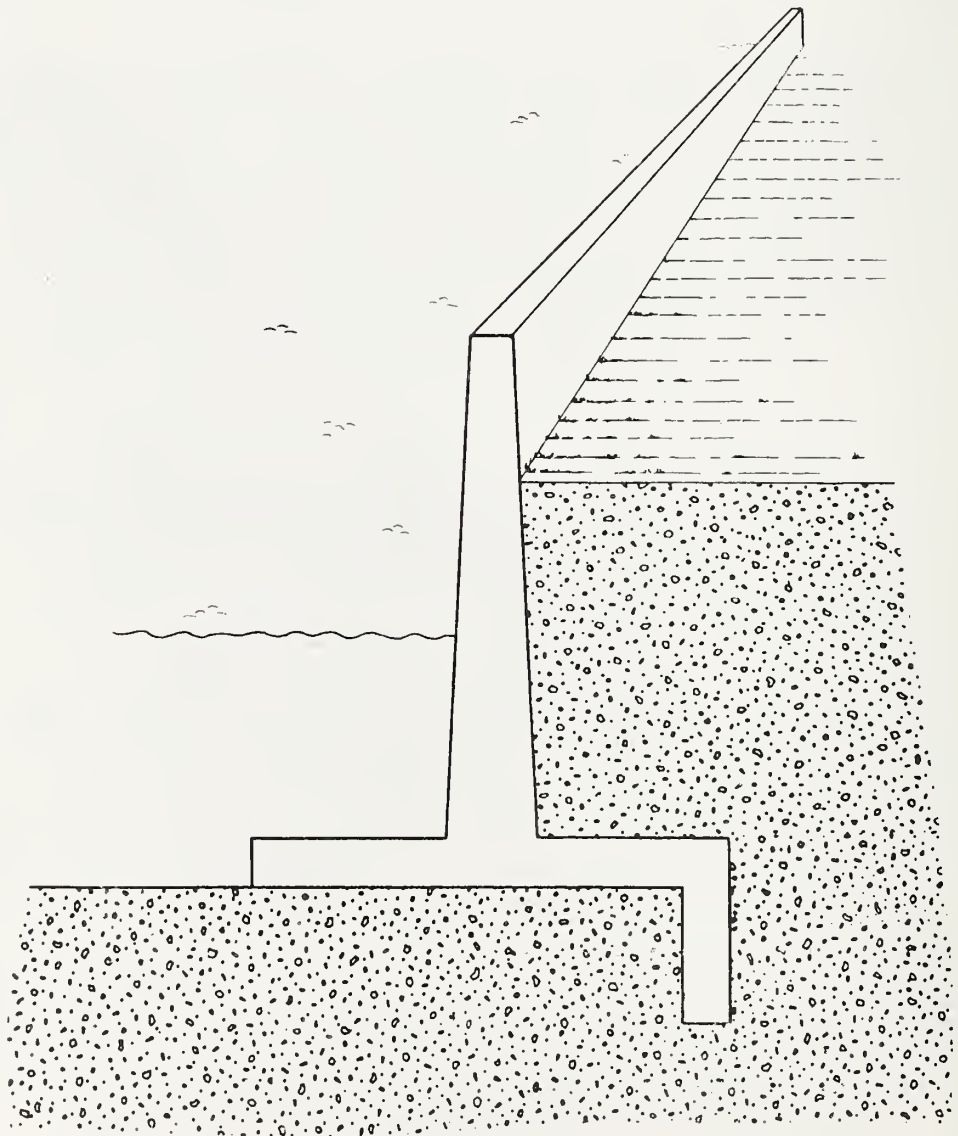




Figure 3

Telephone	3	Power Line
Power Point		
Carpeted	Material	Plugs
Water Line		
Sewer Line		
Construction		Limit

MIDDLE CREEK WATERSHED  
BEAVER SPRINGS FLOODWAY PA-639  
SNYDER COUNTY, PENNSYLVANIA  
FLOODWAY - Plan View



PA-639-P

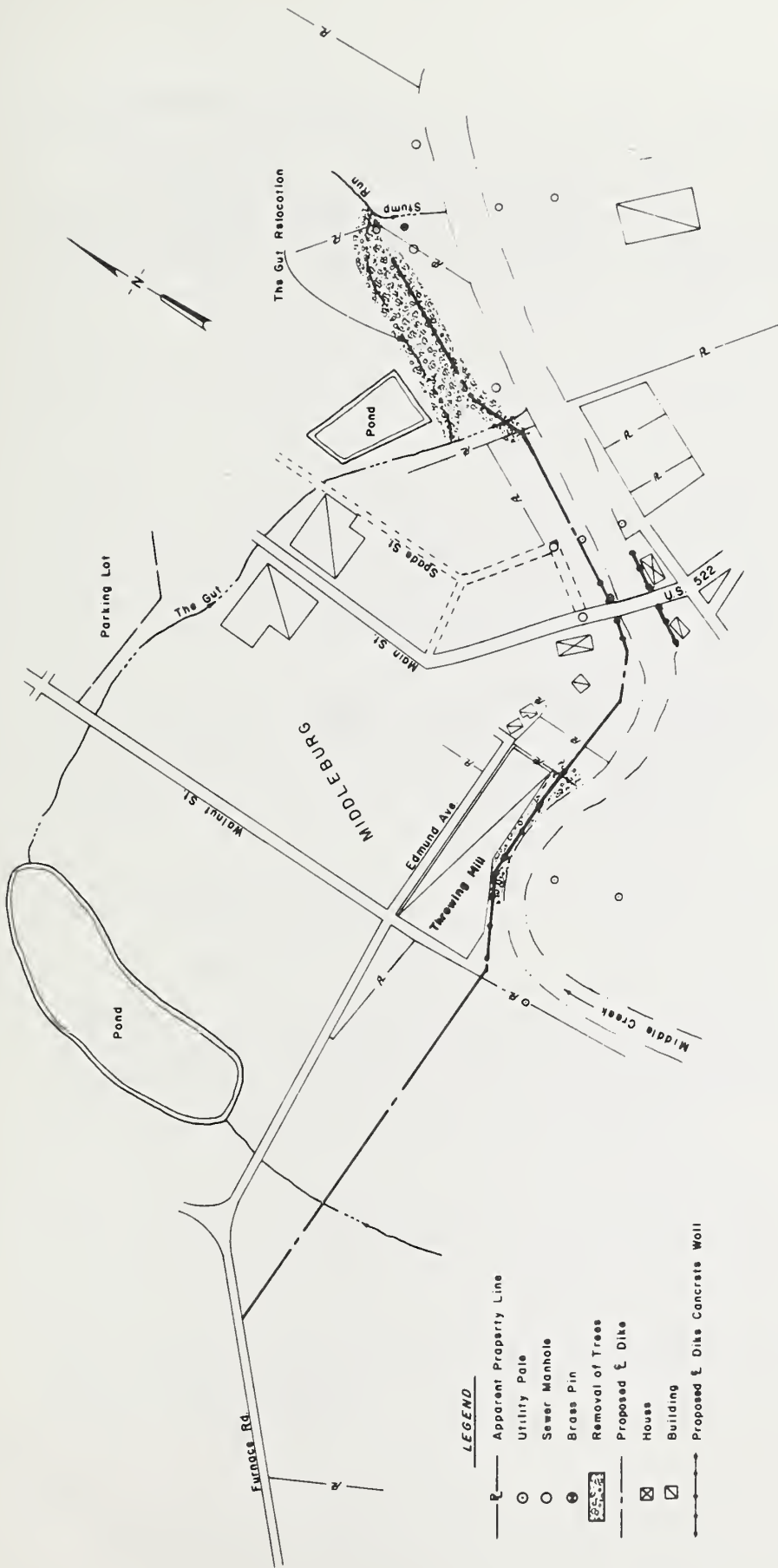
Edmund Street, proceed around the south side of the Middleburg Throwing Corporation, and continue along the north bank of Middle Creek to the confluence with Stump Run. The dike will have earth and concrete construction. The section from Furnace Road to the Throwing Mill will be earthen with a maximum height of 9 feet. The section adjacent to the Throwing Mill will be a concrete wall about 480 feet long and extend 6 feet above the existing ground. An earth dike, with a maximum height of 11 feet, will connect to another concrete wall extending from 40 feet upstream of the Main Street bridge (U. S. Route 522) to 50 feet downstream of the Main Street bridge. The top of the concrete dike will be about 3 feet above the bridge deck (see Figure 4 for location sketch).

Temporary flood shields will connect the concrete dike sections across the Main Street bridge deck. Downstream of the concrete wall, an earth dike section will extend to the confluence of Stump Run. The dike will extend far enough downstream to keep backwater below flood levels in Middleburg during storms up to the 100-year event.

The dike at Middleburg is designed to provide protection from the 100-year frequency storm along Middle Creek with Sites PA-636, PA-637, and PA-638 installed. Flooding will occur behind the dike in Middleburg when the designed height of the dike is exceeded during the storms with greater depth than the 100-year storm plus the 2-foot freeboard. An overflow area is provided in the design between Furnace Road and Throwing Mill for overtopping during these storms with depths two feet greater than the 100-year event. The overflow section consists of a notch in the dike with a flattened land sideslope (Figure 1). This overflow feature is designed for stability of the dike.

Measures to be installed in conjunction with the Middleburg dike include a floodwall on the south side of Middle Creek (Figure 2), floodproofing or relocation of one residence and relocation of the "Gut" drainage channel behind the dike. The floodwall on the south side of the stream consists of a concrete wall 90 feet upstream and 50 feet downstream of the Main Street bridge, and temporary flood shields across the south end of the bridge deck. The top of the floodwall will be about 2 feet above the bridge deck. As part of the floodwall installation, a small earth-fill encroachment on the bridge opening will be removed.

The only residence affected by the dike is located next to the stream on the east side of the bridge. The rear basement entrance of the property could be floodproofed downstream of the concrete floodwall. Relocation of the property is also a viable alternative. The "Gut" channel will be relocated to parallel the land side of the dike and outlet into Stump Run. The channel will be 20 feet wide and 2 feet deep. Excavation will begin at Spade Street and continue about 925 feet to Stump Run. This channel will handle internal drainage for most of the area behind the dike. A small culvert and flapgate will be needed to drain an area north of the dike and west of Main Street.



PLAN VIEW PA - 640

scale 1" = 400'

Figure 4

MIDDLEBURG DIKE

MIDDLE CREEK WATERSHED, PA.



Approximately 40,700 cubic yards of borrow material will be needed to construct the earth dike. Borrow will be taken from onsite and approximately 5 to 7 acres of nearby agricultural land. Upon completion of construction, the earth dike, drainage channel, borrow area, and all other disturbed areas will be seeded with appropriate vegetation. To reduce visual impacts, grass, shrub, tree plantings, and other landscape architecture treatments will be used as specified in the dike design.

## 2. RECREATION FACILITIES

### (a) Multipurpose Dam PA-636

Water-based recreation facilities are planned for a 793-acre development to be located at PA-636, Spring Township, Pennsylvania. The main recreation area on the north side of the lake will provide facilities for picnicking, boating, fishing, hiking, and nature study (see Figure 5). The recreation areas will have water supply, sanitary facilities, parking, boat ramps and docks, roads, signs, shoreline improvements, camping units, picnic units, shelters, and plantings. The facilities will be designed and built to comply with State laws and will include provisions for use by the physically handicapped.

Health and sanitation aspects, including the water supply systems of the entire recreation area, will be developed in accordance with local and State health regulations. Water supply will be obtained from wells. Sanitary facilities will collect effluent in concrete vaults. The effluent will be periodically removed to existing local sewage treatment plants. The picnic area will cover about 13.5 acres of woodland.

The Pennsylvania Fish Commission will manage the fishery of the lake. About nine acres located along the shore of the lake will be utilized as a boat launching and mooring area. Seven acres are presently used for cropland and two acres are old field. The supporting facilities, including comfort stations, parking lots, and roads, are located in this area.

The lake and surrounding recreation facilities will provide 47,000 annual recreation visits.

### (b) Multipurpose Dam PA-637

A 309-acre park with water-related recreation facilities is planned surrounding the existing 239-acre lake at PA-637. The Pennsylvania Fish Commission owns the 309 acres and has easements on an additional 169 acres. The Pennsylvania Department of Environmental Resources will install and manage the recreation development.

The watershed plan calls for facilities for picnicking, boat launching, hiking, sewage, water treatment and distribution, associated access roads and parking areas, and landscaping. A swimming beach will be developed if water quality tests continue to show good water quality.

Planned recreation facilities will occupy a small percentage of the park area. These facilities will be located on six access areas as shown on Figure 6. The remainder of the park area will be preserved as open space and natural areas.



U. S. DEPARTMENT OF AGRICULTURE  
SOIL CONSERVATION SERVICE

FIGURE 5

PROPOSED RECREATIONAL DEVELOPMENT  
MIDDLE CREEK WATERSHED  
PA-636  
SNYDER COUNTY, PENNSYLVANIA

**Figure - 6**





Access to the lake for boating will be at Moyer Mills and Gap Access. An interpretive area at North Branch will include a swamp and a meadow to be utilized as an educational study area. The swimming beach would be located here if developed. The South Inlet Access area will provide fishing and picnic sites. The Troxelville Access will provide fishing, parking, and picnicking. Access to trails will be provided at High Ridge Access. All access areas will have gravelled parking areas.

The main picnic area will be established in the Moyer Mills Access on the north side of the lake. This area will be near the existing boat launching and parking area. Trees and shrubs will be planted to enhance the area.

A hiking trail will provide access around the entire lake and will be the only means of access to many natural areas. Access to the trail will be provided at all six development areas.

Present land use in the park is mostly open land that was formerly pasture or cropland. All facilities except the trail will be developed entirely on the open areas. The remaining open areas will be allowed to revert back to woodland through natural succession, except for the North Branch swamp and interpretive area. The lake and associated recreation development will provide about 120,000 annual recreation visits.

### 3. Erosion and Sediment Control

An erosion and sediment control plan will be developed for each structural measure. These will comply with Title 25, Chapter 102, of the Rules and Regulations of the Pennsylvania Department of Environmental Resources, which were adopted pursuant to the Pennsylvania Clean Streams Law. All operations will be conducted to minimize turbidity in the streams at and below the structures. Prior to construction, borrow areas and spoil disposal areas will be designated. The implementation of the erosion and sediment control plans during construction will control erosion and the resulting sediment to minimize pollution.

After construction, these areas will be graded to blend with adjacent areas and then seeded with adapted grasses and legumes. All disturbed areas, including the embankments, emergency spillways, and access roads, will be revegetated to provide erosion protection.

### C. OPERATION AND MAINTENANCE

Land treatment measures installed will be maintained by the landowners and operators of the land on which these measures are constructed. Financial assistance to landowners for the installation of land treatment measures is contingent upon them agreeing to maintain these measures. Maintenance will be encouraged through the Conservation District program with technical assistance furnished by SCS and other Federal and State agencies.



Annual operation and maintenance costs for structural measures, including recreation facilities, are estimated to be \$157,300. These costs represent the value of material, equipment, services, and facilities needed to operate the project and make repairs and replacements necessary to maintain structural measures in sound operating condition during the evaluated life of the project.

Specific operation and maintenance agreements between the sponsors and the Soil Conservation Service will be executed prior to the signing of the landrights and project agreements. The agreements will include specific provisions for retention and disposal of property acquired or improved with Public Law 566 financial assistance.

#### D. PROJECT COSTS

Costs of installing the two remaining dams, floodway, dike, and recreation facilities to complete the Middle Creek Watershed Project total \$10,801,800. Table 2 displays these costs.

TABLE 2

#### TOTAL COSTS OF REMAINING STRUCTURAL MEASURES (THOUSANDS OF DOLLARS)<sup>1/</sup>

##### MIDDLE CREEK WATERSHED

	PL-566 Federal Funds			Sponsors Other Funds		
	<u>Const.</u>	<u>Engr.</u>	<u>Landrights &amp; Relocations</u>	<u>Const.</u>	<u>Engr.</u>	<u>Landrights &amp; Relocations</u>
PA-636 Dam	4,464.2	284.0	8.1	270.0	0	283.1
PA-636 Recreation	214.8	18.2	0	214.8	18.2	0
PA-637 Recreation	888.4	61.5	0	888.4	62.9	0
PA-638 Dam	950.6	57.7	0	116.7	12.6	16.1
PA-639 Floodway	64.0	9.3	0	0	0	5.3
PA-640 Diking	<u>996.8</u>	<u>59.8</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>25.7</u>
Total	7,578.8	490.5	8.1	1,489.9	93.7	330.2
Project Administration		660.7			149.9	

<sup>1/</sup> Price Base - 1978

#### IV. ENVIRONMENTAL IMPACT

##### A. CONSERVATION LAND TREATMENT

Measures being applied under the accelerated land treatment program will help to stabilize eroding agricultural land, reduce sediment production, increase rainfall infiltration, and benefit yields from agricultural lands.

It is estimated that 42,000 acres or 50 percent of the land in the watershed has been adequately protected. A continued program of land treatment will reduce sheet erosion to acceptable levels on land identified as yet needing treatment (primarily cropland).

The quality of water from agricultural lands should improve with increased infiltration resulting from the installation of conservation practices. Conservation land treatment will have little effect on urban growth, health and safety of residents, and archaeological and historical landmarks. Aesthetics of the watershed will be enhanced by the development and preservation of wildlife habitat, tree and shrub planting, and improved water quality.

##### B. STRUCTURAL MEASURES

###### 1. Impacts on Flood Damage

The watershed experiences an average of 44 inches of precipitation each year with about 18 inches falling during the growing season. Approximately 19 inches leaves the watershed as surface runoff annually. Flooding has long been a serious problem. Ten major floods have occurred during the last 90 years. The most recent three floods occurred in 1972 from tropical storm Agnes, in 1975 from tropical storm Eloise, and in 1976 from a storm resulting from a strong frontal system. The maximum 12-hour rainfall recorded was 4.68 inches in Agnes, 2.59 inches in Eloise, and 3.52 inches for the 1976 storm. The 1972 storm was a 42-hour event that dropped 10.1 inches of rain. The 1975 storm was a 54-hour event that dropped 8.8 inches. The 1976 storm was a 43-hour event that dropped 5.8 inches. The 1972 and 1976 events were in excess of the 100-year storm event. The 1975 event was less than a 100-year storm event.

When completed, the remaining works of improvement will reduce flood damages. Flood prevention benefits from the structural measures will be obtained by containing floodwater with the dike (PA-640) and the floodway (PA-639), and by holding runoff behind the two dams for release after the storm. Table 3 summarizes, by evaluation reach, the average annual benefits and the reductions in stage and discharge.

The project features will reduce annual direct and indirect flood damages by an estimated \$352,400 1/. Direct damages are losses to buildings and contents that are actually flooded, while indirect damages are losses associated with flooding, for example: loss of wages, food spoilage due to loss of electricity, etc.

---

1/ Price Base: 1973 values

TABLE 3

## MIDDLE CREEK WATERSHED, PA

EFFECTS OF PA-636, PA-638, PA-639, AND PA-640 ON FLOODING FROM THE 100-YEAR FLOOD

Reach Number <u>1/</u>	Reduction in Stage (feet)	Discharge (cfs)		Reduction in Discharge (cfs)	Average Annual Benefits <u>3/</u>
		Present Conditions <u>2/</u>	With Project		
A <u>4/</u>	0.7	12,000	10,200	1,800	6,200
B <u>4/</u>	1.7	10,600	7,300	3,300	3,100
C <u>4/</u>	2.0	10,600	7,300	3,300	6,200
D	1.9	10,600	7,300	3,300	3,100
E	1.6	9,500	6,700	2,800	166,700
G	1.7	8,900	6,100	2,800	3,100
H	1.5	8,900	6,100	2,800	3,100
I	1.3	8,400	5,600	2,800	6,200
J	1.1	8,300	4,700	3,600	2,900
K	-	900	900	-	0
N	3.8	1,300	300	1,000	44,600
P	-	400	400	-	75,900
P1	-	400	400	-	4,500
P2	-	400	400	-	26,800
Total					352,400

1/ Reach numbers are shown on the Project Map, Appendix, B.2/ With PA-637 built.3/ Price Base: 1973.4/ Located downstream of Middleburg.

The agricultural land located upstream from Middleburg will receive substantial protection. The majority of the 368 acres of agricultural land which will be protected is located in this area. There will be some reduction in crop and pasture damage in the areas below the watershed boundaries. The principal crops grown on the flood plain are corn, oats, and hay.

Installation of the works of improvement is not expected to result in urban development of the protected flood plain. Ordinances are being enacted by the local governments to provide for prudent development adjusted to flood risk and installed according to minimum standards. Land use in the flood plain will continue toward open space or other conformable uses as laws are enacted and enforced.

The potential for catastrophic flooding associated with extremely large storms will remain. Storms which yield far in excess of the 1 percent chance flooding will produce flood losses much as they do at present. The dike at Middleburg will provide protection from up to the 1 percent flood plus a two foot freeboard. Should flooding become greater than this at Middleburg, water would flow through an overflow area over the dike and into Middleburg. This will maintain the integrity of the dike but will not prevent flood damages.

## 2. Impacts on Land Use

Land use changes which will occur as a result of installation of the structural measures are displayed in Tables 4-7. Permanent land use changes will involve 15 acres for dams and spillways, 167 acres for permanent reservoir pools, 22.5 acres for recreational facilities, 4 acres for the floodway, and 15 acres for the dike. In addition to these, 282 acres of land to be changed to recreation will occasionally be inundated within the PA-636 floodpool. Also, 26 acres of land upstream of PA-638 will be occasionally inundated by the reservoir's floodpool.

The project is in compliance with Executive Order 11988, Flood Plain Management. All of the flood plain to be protected by the dike at Middleburg is either already developed or controlled by the Middleburg Borough. The sponsors decisions concerning flood plain management will not result in adverse effects or incompatible development on the flood plain. There are no practicable alternatives to the proposed project that would not cause adverse effects on the base flood plain.

The project is in compliance with Executive Order 11990, Protection of Wetlands. The wetlands survey conducted as part of the Terrestrial Biological Survey of the watershed revealed only three wetlands, one of which is PA-637, Walker Lake. The other two are a type 7 wetland of approximately 160 acres in the northeast corner of the watershed and a type 2 wetland of approximately 5 acres just south of PA-637. Neither of these will be affected by the watershed project.



MIDDLE CREEK WATERSHED, PENNSYLVANIA  
SUMMARY OF LAND USE AND ACREAGE AFFECTED BY PA-636 1/

<u>Land Use or Plant Community</u>	<u>Dominant Species 2/</u>	<u>Dam and Spillways</u>	<u>Permanent Pool</u>	<u>Flood- Pool</u>	<u>Recreation Areas 3/</u>	<u>Total</u>
Woodland						
Bottomland	1. Pin Oak, Black Oak, Red Oak	6	53	105	0	164 ac.
	2. Spicebush, Beech, Maple, Hemlock, Elm					
	3. Jewelweed, Poison Ivy, Cinquefoil					
Upland	1. Chestnut Oak, Red Oak, Hickory	-	-	-	13.5	13.5 ac.
	2. Ironwood, Vaccinum, Maple					
	3. Cinquefoil, Salamon's seal, Poison Ivy					
Old Fields	1. Absent	-	16	55	2	73 ac.
	2. Silky Dogwood, Alder, Locust					
	3. Grasses, Cinquefoil, Goldenrod, Sedges					

1/ More specific data is available in Terrestrial Biological Survey of Middle Creek Watershed, prepared U. S. Department of Agriculture, Soil Conservation Service, Yule, Jordon and Associates, November 1976.

2/ 1. Canopy layer  
2. Understory trees, shrubs or vines  
3. Herbaceous layer

3/ Reflects only the areas of planned development.



TABLE 4 (cont'd)

MIDDLE CREEK WATERSHED, PENNSYLVANIA  
SUMMARY OF LAND USE AND ACREAGE AFFECTED BY PA-636

<u>Land Use or Plant Community</u>	<u>Dominant Species 2/</u>	<u>Dams and Spillways</u>	<u>Permanent Pool</u>	<u>Flood- Pool</u>	<u>Recreation Area 3/</u>	<u>Total</u>
Cropland	Oats, Corn, Wheat	-	53	62	7	122 ac.
Pasture	1. Absent	-				
	2. Absent	-	7	11	-	18 ac.
	3. Mixture of forbs and grasses					
Other	Water, Roads, Residential	-	14	49	-	63 ac.
	Totals	6 ac.	143 ac.	282 ac.	22.5 ac.	453.5 ac.

TABLE 5

MIDDLE CREEK WATERSHED, PENNSYLVANIA  
SUMMARY OF LAND USE AND ACREAGE AFFECTED BY PA-638

<u>Land Use or Plant Community</u>	<u>Dominant Species 1/</u>	<u>Dams and Spillways</u>	<u>Permanent Pool</u>	<u>Flood- pool</u>	<u>Total</u>
Woodland					
Hardwoods	1. Red Maple, White Oak, Aspen	-	4	13	17 ac.
	2. Sweet Birch, Red Maple				
	3. Ferns, Solomon's Seal, Greenbriar				
Conifers	1. Hemlock, White Pine, Virginia Pine	-	1	10	11 ac.
	2. Hemlock, Red Maple, Hawthorn				
	3. Wintergreen, Grasses, Cinquefoil				
Old Fields (Reverting)	1. Pitch Pine, Hemlock, Elm	9	19	3	31 ac.
	2. Cherry, Spicebush, Dogwood				
	3. Blackberry, Cinquefoil, Sedge	-	-	-	-
	Totals	9 ac.	24 ac.	26 ac.	59 ac.

- 1/ 1. Canopy layer  
2. Understory trees, shrub and vines  
3. Herb layer

TABLE 6  
MIDDLE CREEK WATERSHED, PENNSYLVANIA

SUMMARY OF LAND USE AND ACREAGE AFFECTED BY PA-639

<u>Land Use or Plant Community</u>	<u>Dominant Species 1/</u>	<u>Floodway</u>	<u>Total</u>
Old Field	1. Absent 2. Silky Dogwood 3. Goldenrod, Ragweed, Clovers	4	4

<u>1/</u>	1. Canopy 2. Understory trees, shrubs, and vines 3. Herb layer
-----------	--

TABLE 7

MIDDLE CREEK WATERSHED, PENNSYLVANIA  
SUMMARY OF LAND USE AND ACREAGE AFFECTED BY PA-640

<u>Land Use or Plant Community</u>	<u>Dominant Species 1 /</u>	<u>Dike</u>	<u>Total</u>
Woodland	1. Honey Locust, Maples, Elm	4	4 ac.
	2. Dogwood, Bittersweet, Pokeberry		
	3. Poison Ivy, Jewelweed, Blackberry		
Old Field	1. Absent	11	11 ac.
	2. Absent		
	3. Barley, Ragweed, Goldenrod	—	—
	Totals	15 ac.	15 ac.

- 1/
1. Canopy
  2. Understory trees, shrubs and vines
  3. Herb layer

### 3. Impacts on Prime Agricultural Land

Three acres of prime agricultural land and 90 acres of farmland of statewide importance will be inundated by the permanent pool at structure PA-636. Twelve acres of prime agricultural land will be occasionally inundated in the PA-636 floodpool. An additional acreage of farmlands of statewide importance will be affected by floodpools. Approximately 162 acres at PA-636 and 2 acres at PA-638 will be periodically inundated within these areas. Farmland of statewide importance in Pennsylvania is all land in Agricultural Land Capability Classes II and III that does not qualify as prime farmland. Approximately 200 acres of farmland of statewide importance will be protected from flooding downstream of the structures. No prime agricultural land will be protected.

### 4. Impacts on Plant and Animal Resources 1/

No threatened or endangered species of plants or animals as listed by the U. S. Fish and Wildlife Service are known to exist in the watershed. The plant communities in the area of the proposed dams and spillways (PA-636 and PA-638), floodway (PA-639), and dike (PA-640) will be completely changed (see Tables 4-7). The dams, spillways, floodway, and dike will be planted to grass-legume mixtures adapted to the sites. Woody species will be kept from growing on the structures. The borrow areas will be planted to adapted vegetation.

---

1/ Based on two studies conducted under contract with the Soil Conservation Service: "Terrestrial Biological Study of Middle Creek Watershed," by Yule, Jordan, and Associates, November 1975 and "Final Report, Aquatic Biology, Middle Creek Watershed," by Dunn Geoscience Corporation, August 1976.



The structures and permanent pools of Sites PA-636 and PA-638 will eliminate approximately 182 acres of existing wildlife habitat. Wildlife will be displaced into adjacent habitat. The ability of the adjacent habitat to support this additional wildlife depends upon availability and amount of food and cover, the wildlife species, and the time of year. Species with large range areas such as deer, turkey, and fox will continue to utilize the surrounding habitat, and there will be little or no detrimental effect on their populations. However, species with small home ranges such as rabbits and squirrels will experience a population decline if the surrounding habitat cannot provide adequate food and cover. The two permanent pools will create about two miles of shoreline and 167 surface acres of water. This change, along with its resultant increase in plant diversity, should increase wildlife diversity. The permanent pools will provide habitat favorable for waterfowl, shorebirds, and other species dependent on aquatic habitats.

Construction of the floodway at Beaver Springs, the dike in Middleburg, and relocation of the "Gut" will have no significant affect on populations of game species. There will be a loss of about 1,800 feet (2.5 acres) of riparian habitat in Middleburg that provides food and nesting cover for small birds and mammals. The area of the dike and "Gut" relocation (1.6 acres) will be 90 feet north of Middle Creek and will not affect the immediate streamside vegetation. Species such as swallows and killdeer may become more abundant while thrushes, vireos, and warblers may become less abundant. The floodway, PA-639, will result in a loss of four acres of existing habitat for small birds and mammals. The grass and legume covered dike and floodway will provide some habitat for small birds and animals.

Vegetation in the 308-acre floodpool areas will experience limited change. There will be no removal of vegetation. The plant communities will be subject to intermittent flooding. Species composition will depend on frequency, duration, and season of flooding. Several short flooding periods, during the growing season, will not injure most woody shrubs. Flood-intolerant trees, such as beech, birch, hickory, black gum, white oak, red oak, sugar maple, and hawthorn may incur some mortality at the lower floodpool elevations where flooding frequently occurs. Species preferring wet areas (willow, cottonwood, silver and red maples, spicebush, arrowwood, chokecherry, and alder) can be expected to replace the losses of any species intolerant to periods of inundation. Bottomland hardwoods at Site PA-636 are adapted to flooding during the winter or spring. Many of the tree species at PA-638 are adapted to upland sites with drier, well drained soils; therefore, flooding at Site PA-638, as compared to Site PA-636, may have a greater impact on the existing trees. Intermittent flooding should have no adverse effects on the hemlock trees bordering PA-638's permanent pool. The impact on terrestrial herbs will vary with herb tolerance to flooding, and ability to reoccupy flooded areas. These impacts will be restricted to the lower elevations of the floodpool where flooding is more frequent.

Periodic flooding within the floodpool areas will result in temporary loss of habitat for small animals (such as rabbits, pheasants, and gray squirrels). During periodic flooding, there may be losses of young and some adults that are nesting on the ground or low in shrubs and trees. However, renesting is normal among most species and this could compensate for some flood losses. Downstream habitat will have a reduction of flooding frequency and the lowering of flood crests. This should reduce losses of wildlife that presently occur in downstream habitat.

The construction of the recreational facilities at PA-636 will temporarily displace some wildlife. There could be a change in animal species composition after the recreation facilities are constructed. Species such as woodchucks, gray squirrels, and rabbits are adaptable to habitat alterations and may benefit from the habitat change.

The boating access area will affect nine acres of cropland. This area will be altered by the construction of a parking lot and boat ramp. About 5 acres of unpaved areas will be planted to adaptable grasses.

The woodland within the proposed picnic area at Site PA-636 will be pruned and thinned to a "park-like" appearance. Selected trees and shrubs will be removed to provide areas for recreation activities and supporting facilities. This will increase openings which may result in increased herbs and herb diversity. However, this may be offset by human activities such as hiking, playing, and picnicking that could damage the herb cover. Playground areas will be planted to adapted grasses.

The development of public recreational facilities at PA-637 (Walker Lake) will be on existing cropland and pasture. These fields will be developed as a picnic area. Existing vegetation will be replaced by adapted grasses, trees, and shrubs for landscaping.

Fish sampling conducted at nine stations in the watershed indicates that Middle Creek is best suited to warm water fishes. Kern Run alone supports a trout fishery in the upstream reaches. The benthic macroinvertebrate study 1/ at the nine sampling stations indicates "a variety of habitats, moderate organic enrichment, and water quality with good dissolved oxygen and few toxic elements."

The proposed structures, PA-636, PA-638, PA-639, and PA-640, will increase stream turbidity and siltation during construction. Extensive erosion and sedimentation control measures will be used to minimize soil erosion and sedimentation.

The long-term effects of the project will include a loss of 9,500 feet of stream fishery along Middle Creek and 3,600 feet along Kern Run. The resulting 24-acre reservoir at PA-638 Kern Run, should be suitable for native trout. Trout are expected to continue to reproduce upstream and downstream of the dam.

---

1/ Ganis, G. Robert, 1976, Final Report Aquatic Biology - Environmental Assessment, Middle Creek Watershed, Snyder County, PA, Dunn Geoscience Corporation, Harrisburg, PA 95pp.

The 143-acre reservoir at PA-636, may be suitable for early season put-and-take trout fishing. It will be suitable for warm-water fish. The permanent pool may become slightly eutrophic and support rooted aquatic plants in the shallow areas along the shore.

The dams at PA-636 and PA-638 are barriers to the migration of suckers and eels, the only migratory species in Middle Creek. Other species that may attempt to migrate from the Susquehanna River up Middle Creek are already blocked by the Pennsylvania Fish Commission's dam at Middle Creek Lake.

Solar heating will increase water temperatures within the two permanent pools. Site PA-636 can be expected to increase the outlet water temperatures by as much as 4-5°F. by mid-summer. In the spring, PA-636 is not expected to warm significantly and should release water within the temperature limits tolerated by trout. At present, Middle Creek supports a put-and-take trout fishery which ends about the first week in June due to stream temperatures. This situation will not change due to the dams being installed. The increased outlet temperatures should not harm Middle Creek's warm water fishery and, in fact, may improve it. The cold incoming streams, small surface area, and northern aspect of Site PA-638 should minimize any increase of water temperature there. The proposed lake will have sufficient depth for water to stratify. A low flow release will draw cold water from a depth which is within the temperature range suitable for trout.

The dams, PA-636 and PA-638, will decrease the flushing effects of storms and increase the stability of the physical characteristics of the stream by regulating flow. This effect will be more obvious immediately below the dam and decrease with distance. A stable stream can provide habitat for all year classes of fish and decrease loss of younger fish, due to flooding.

The floodway (PA-639) in Beaver Springs and the dike (PA-640) in Middleburg will have no significant long-term impacts to either the warm water fishery or the early season put-and-take trout fishery above or below the sites.

##### 5. Impacts on Water Quality

Installing these dams (PA-636 and PA-638) will trap sediment in sediment pools and reduce turbidity and sediment discharge from the watershed; however, the turbid water discharges may be slightly lengthened in some seasons of the year. Impoundment of the waters of Middle Creek is expected to reduce the concentration of nutrients to stream flow below the dams in a similar manner to that reported by the Environmental Protection Agency. 1/

---

1/ Dufferm W. R. and Harlin, C. C. (1971). "Changes in Water Quality Resulting from Impoundment," Environmental Protection Agency, Washington, D. C.



Reduction in levels of fecal coliform will also occur during impoundment. 1/ These effects were also reported from work by Grove City College on SCS dams in Mercer County, Pennsylvania, as well as in studies by Bucks County Natural Resources Division, Bucks County Planning Commission, Pennsylvania.

The suspended sediment concentration in runoff from a drainage basin is not constant but varies from large volumes of sediment during storm events to very small volumes during normal and low flows. The average suspended sediment concentration is appreciably lower than the concentrations during storm events. It more nearly approaches the concentrations of low flow. The dams would have a substantial effect on the reduction of sediment discharge. They will trap and store 480.8 acre feet of sediment during the life of the project. This will reduce the annual sediment delivered downstream of the dams by more than 90 percent.

Stream turbidity will increase during construction until vegetation is established on the disturbed areas. Conservation practices to minimize soil erosion and this pollution will be included in the construction contract.

---

1/ Churchill and Coe, (1957). "Effects of Storage Impoundments on Water Quality," Proceedings for ASCE, Vol. 83. Paper 117/SA 1.

## 6. Impacts on Archaeological and Historical Resources

Installation of the project will affect two historical properties--a covered bridge and an archaeological site. These sites were identified by a professional archaeologist during a survey of the project area. <sup>1/</sup> It included a Phase 1 reconnaissance investigation (literature search, field review of sites and interviews with landowners and other knowledgeable persons). It also included a Phase 2 survey (surface survey, phosphate testing of soil to determine locations of human occupation, and test pitting in the only identified archeological site). The covered bridge is on the National Register of Historic Places. A plan for moving and preserving this bridge will be prepared in consultation with the State Historic Preservation Officer and the Advisory Council on Historic Preservation. This plan will be implemented prior to construction of PA-636. This consultation will be in compliance with Section 106 of the National Historic Preservation Act (16 U.S.C. 470f).

The archaeological site is located along the banks of Middle Creek in the pool area of PA-636. Artifact collections and test pitting of the site, which is now a crop field, revealed that prehistoric peoples occupied the site from the archaic through late woodland period. It has been determined not eligible for inclusion on the National Register of Historic Places. The State Historic Preservation Officer has concurred in these findings (see Appendix C). Should other archaeological resources be discovered during construction, the State Historic Preservation Officer and Secretary of the Interior will be notified immediately. Any recovery, protection, or preservation measures will be performed in accordance with the Archaeological and Historical Preservation Act, PL-93-291. As a Federally assisted local project, there will be no change in the existing responsibilities of any Federal agency under Executive Order 11593 with respect to archaeological and historical resources.

## 7. Impacts On Properties, Roads and Utilities

The installation of the proposed project requires acquisition or permanent easements from several property owners for roads, land, and utilities.

All of the landrights for PA-636 have been acquired by the local sponsors. These landrights include 17 fee title and 44 easements. The relocation of seven residences was accomplished for this site. Three of the seven eligible occupants applied for and received financial assistance under the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970. Landrights for PA-636 also include flood easements for 3,300 feet of State highway which will be flooded during storms exceeding the 25-year frequency event. Four thousand five-hundred feet of State highway which will be flooded at more frequent intervals will be turned over to the Snyder County Commissioners. Also, 8,650 feet of township road which are in the permanent pool and recreation areas will be abandoned.

---

<sup>1/</sup> "A Preliminary Archaeological and Historic Survey of Proposed Structure Sites PA-636, PA-638, PA-639, and PA-640, Middle Creek Watershed, Snyder County, Pennsylvania," Brenda Barrett, August 15, 1976.



Five thousand three-hundred feet of township road will be affected by infrequent flooding, 3,700 feet of which will be used for recreation access. Utilities affected by PA-636 include overhead electric and telephone lines. Six thousand four-hundred feet of electric lines are within the permanent pool and planned recreation area. Also, 9,100 feet of electric lines are between the permanent pool and top of dam elevations.

The electric lines will be removed or relocated as required by the Pennsylvania Power and Light Company. Eight thousand five-hundred feet of local service telephone lines owned by the Continental Telephone Company will be removed from the permanent pool and recreation areas. These lines serviced the relocated occupants of the site. Six thousand seven-hundred feet of main feeder telephone cable is between the permanent pool and top of dam elevations. The telephone company plans to maintain these lines in their present locations.

All landrights required for the recreation development at PA-637 have been obtained by the Pennsylvania Fish Commission. This land has been in public ownership since the construction of the impoundment at this site.

All landrights for PA-638 have been obtained. The sponsors acquired ownership of four properties and an easement on one. No residences or relocations are involved at this site. No public roads are affected by construction of PA-638. Two property owners retained access rights through the site to their remaining properties. The only utility affected by this dam is a waterline which extends from an existing water supply through the proposed pool and dam about 1,650 feet. This line will be adapted as needed by the sponsor for the proposed water supply system.

Landrights acquired for the floodway (PA-639) include two fee title and seven easements. No residences or relocations are involved at this site. Two local streets will be bisected by the proposed floodway. Alternate access is available to the two properties affected and a ford will be installed across the floodway for additional access. The floodway will intersect two water lines and one sewer line. These will be reinstalled at a greater depth to allow excavation of the floodway. Three electric lines, one telephone line and one television cable intersect the floodway. These lines will not be affected by the project since they are overhead.

Part of the landrights for the dike (PA-640) have been obtained. These landrights are upstream of U. S. Route 522 (Main Street) and include one fee title and three easements. Additional landrights are required for four properties downstream of U. S. Route 522 and for one property in the borrow area.

One residence on the south side of Middle Creek will experience increased basement flooding with the project. This will require that the sponsors either purchase the home or provide floodproofing to protect the home. The occupants will be eligible for relocation assistance. No other residences or relocations are involved at this site.

The only road to be affected by PA-640 will be U. S. Route 522 at the Middle Creek bridge. The road openings will be fitted with floodwater shields at each end of the bridge to tie the concrete flood walls together. These removable metal shields will be installed only in the event of a 100-year frequency flood event.

Utility lines intersected by the proposed dike include two sewer lines, one water line, two private drains, one power line, one telephone line, and one television cable. The proposed project will require the relocation of four utility poles. Impacts to buried utilities will be minimized by lowering the utilities where needed and intersecting the dike alignment as little as possible.

The overall project, when installed, will reduce disruption of service of roads and utilities due to reduced flooding.

#### 8. Economic and Social Impacts

The direct primary beneficiaries of this project are the residents, industries, and commercial establishments which will be protected from floodwater damage. The reduction of floodwater damage, repair, and maintenance costs will reduce the overall cost of production and service, allowing enterprises to become more competitive.

Indirect benefits will accrue to all citizens of Snyder County because public costs for nonstructural measures, rescue, cleanup, and repair and maintenance of roads and bridges diminish with the flood prevention program.

Aside from the flood prevention benefits, the quality of living will be enhanced by the commitment of land for open space and recreation. Installation of the remaining structural measures and the recreational facilities of the project will remove about 900 acres from the tax base of the communities directly affected by the plan. This will, however, be more than offset by the increased value of the properties in the benefited area and the social and economic opportunity associated with recreational developments.

Reduction of flooding from the 100-year and more frequent storms will in itself improve the quality of life for residents throughout the flood plain. This will provide many residents with an initiative to upgrade their property without fear of periodic flood damages. Similar benefits will occur but with a lesser degree of protection to other dwellings throughout the watershed. Reduction of flood damages will give inhabitants a freedom of choice in the expenditure of monies that now go for repair of flood damage. Public funds spent on repair of flood damaged property can be shifted to other priorities that will improve the quality of living.

Installation of the project will affect other aspects of the local economy. Project construction will provide new employment and generate personal income. Installation, operation and maintenance of the projects will generate an estimated \$33,800 annually in wages. This income and that generated from maintenance and operation of the dams will increase

economic activity associated with greater expendable income and demand for goods and services. While the effect of the project on per capita income cannot be directly measured, it is expected that the dollars spent on construction, operation, and maintenance of the project will contribute to the upward economic trend in this area.

The water supply provided at PA-638 will be for both residential and commercial use. Seven hundred people will receive water at residences. Three manufacturing plants employing 426 people, 6 dairy farms, 2 schools with an enrollment of 750 students, 3 churches, and 14 businesses also will depend on the new supply. This reservoir will replace an existing water supply that has proven to be insufficient for present needs.

Annual operation and maintenance costs for PA-636, PA-637, PA-638, PA-639, and PA-640 are estimated to be \$9,100. 1/ Operation, maintenance, and replacement costs for the recreation facilities are estimated to be \$130,000. Operation, maintenance, and replacement costs of the project are local responsibilities. These monies will be raised via taxes and/or user fees.

The installation of the dams will not require the relocation of any families. 2/ Several buildings are located in close proximity to the floodway (PA-639) on a tributary to Beaver Creek. They lie on the common flood plain between the tributary and Beaver Creek. The floodway will reduce flooding of these buildings from the tributary only. The only additional effect will be a rerouting of access to these buildings during flood flows.

There are no minority residents living in the watershed.

The construction of the dike will increase basement flooding at one residence on the southside of Middle Creek. Floodproofing or relocation of this residence will be necessary.

---

1/ Price Base - 1973.

2/ Landrights have already been purchased and relocations made for all damsites.



## V. ALTERNATIVES

### Introduction

All alternatives for this project were evaluated for hydrologic effectiveness, environmental harmony, and cost efficiency. All alternatives except the no project alternative contain the land treatment program as described in the planned project.

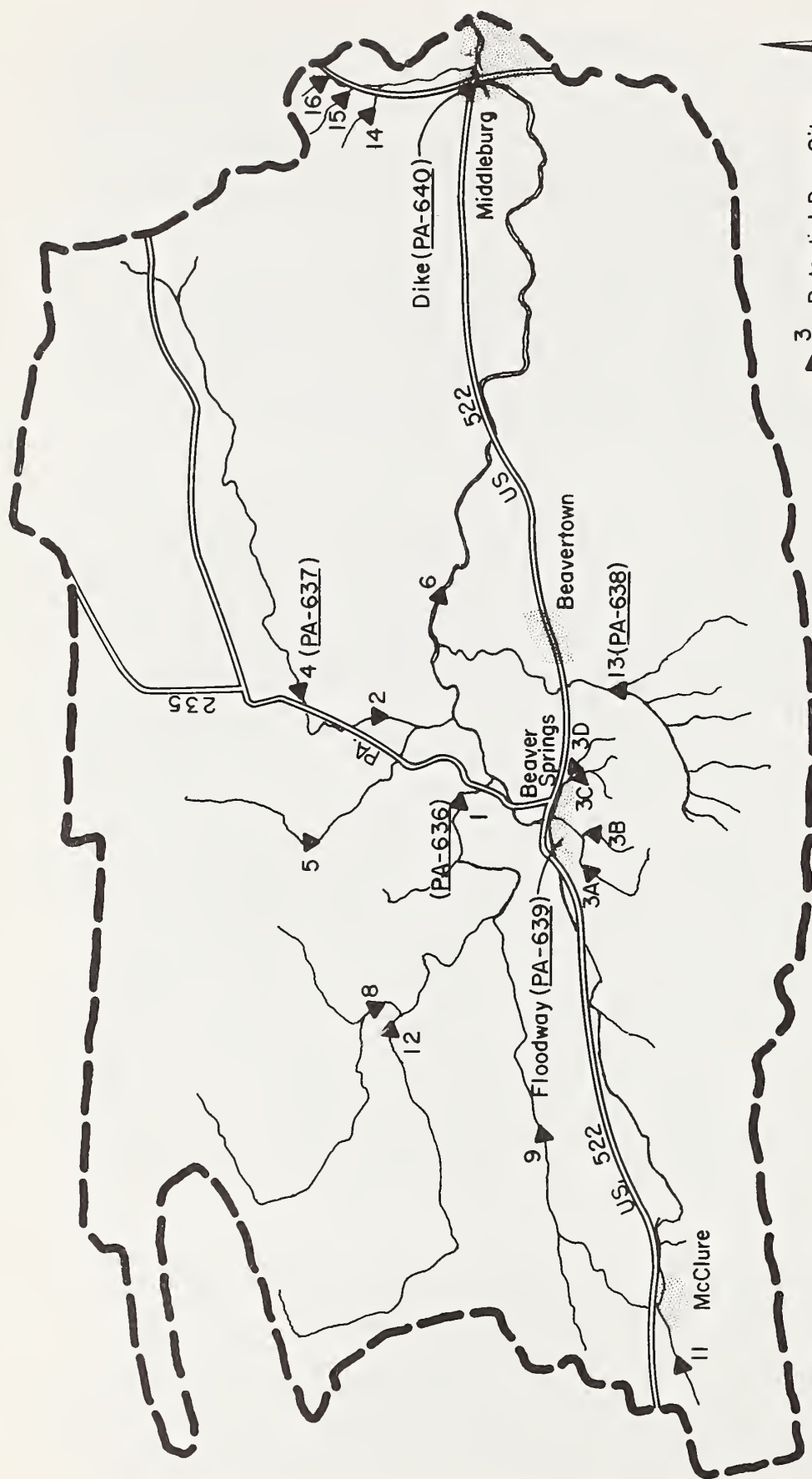
The studying of alternatives which resulted in the planned project utilized the following logic. Due to the depth and size of flooding in the main damage area at Middleburg, floodwater retarding dams were investigated. If the flooding could be reduced within the flood damaged areas with dams, then other structural and nonstructural measures could be added to lower the flood damages to acceptable levels.

### Floodwater Retarding Dams

Seventeen possible damsites were initially identified in the watershed planning process (Figure 7). Each was evaluated for its individual merits as well as its role in a system of floodwater retarding structures.

Six structure sites were dropped early in planning. Two of these were eliminated in favor of more efficient sites nearby. Site 2 with a drainage area of 7.34 square miles was located in series downstream of damsite 4 (PA-637), but was found to be an unnecessary increment. Site 4 alone, with a drainage area of 17.59 square miles, was found to adequately control the North Branch of Middle Creek. In the western end of the watershed, Site 8 on Krebb Run and Site 12 on Ulsh Creek were adjacent to each other just upstream of the confluence of these two tributaries. Site 8 would control 7.48 square miles and Site 12 would control 6.50 square miles. Either site would protect the community of Middle Creek. Because Site 8 was a shorter dam, more economical, and had better storage characteristics, Site 12 was eliminated. Site 6 was located on the main stem of Middle Creek, north of Beavertown. This site would control 95.0 square miles and adequately protect Middleburg. The extensive impoundment would inundate about half of Beaver Springs and the northern fringes of Beavertown. Due to the extensive landrights costs involved, this site was eliminated. The other three sites dropped early in planning were Sites 14, 15, and 16 on tributaries of Stump Run north of Middleburg. These three small sites were proposed to control this high gradient stream. Due to the steep topography, all three sites had poor storage characteristics. Also, flooding from Stump Run was more of a nuisance type and did not accumulate damages to justify these inefficient structures.

The remaining 11 sites were investigated in greater detail. When the floodwater damages were assessed in McClure, Benfer, and Middle Creek, Sites 5, 8, and 11 above these communities could not be justified on local benefits. They were also not efficient in controlling flooding downstream along Middle Creek and were, therefore, eliminated. Sites 3A, 3B, 3C, and 3D were located on steep gradient tributaries above Beaver Springs. Due to their poor storage characteristics, these were eliminated in favor of a more economical floodway in Beaver Springs as described in the planned project.



MIDDLE CREEK WATERSHED  
 SNYDER COUNTY, PENNA.  
 ALTERNATIVE STRUCTURE LOCATIONS



Sites 1 and 9 remained in series. With no significant damage centers between these sites, it was determined that Site 9 was not necessary to reduce flooding in that reach. Due to better storage characteristics and lesser impacts on existing properties and roads, Site 1 was chosen as the more efficient site for providing protection to downstream damage centers. This structure was also planned for multipurpose recreation use and was designated Site PA-636.

The remaining two sites, 4 and 13, were also found to be efficient floodwater retarding structures. Site 4 was also planned to provide multipurpose recreation use, and was designated Site PA-637. Site 13, due to its favorable location and storage capacity, was planned as a multipurpose water supply site to meet local needs in Beaver Springs and Beavertown. This site was designated PA-638.

With the three proposed dams in place, additional protection would still be needed for the main damage center, Middleburg. With the elimination of the remote and inefficient damsites, other structural and nonstructural alternatives were considered.

#### Channel Modification

Channel modification through Middleburg was proposed to supplement the three floodwater retarding dams. The excavated channel would extend for 7,000 feet from the concrete dam upstream of Middleburg to a point downstream of the borough boundary. The bottom width of the channel would be increased from about 75 feet to 140 feet. This channel would cost about \$2,250,000 including the local expense of \$870,000 to replace the Main Street bridge and purchase landrights. This alternative was rejected because of high costs and environmental damages associated with the stream modification.

#### Floodway

A floodway was proposed to lower the flood levels in the Middleburg area as an alternative to the lower portion of the dike (downstream of the Main Street bridge). This would be an elevated channel on the south side of Middle Creek, extending for 3,900 feet from Shuman Street to a point downstream of the borough boundary. The floodway would cover about 27 acres along the stream. The excavated material would be spoiled on another 27 acres off the flood plain. The floodway would be built in combination with the portion of the planned dike upstream of the Main Street bridge. The cost of this alternative would be about \$1,412,000 including \$52,000 in local costs. This alternative was rejected because it required a much larger area of flood plain and upland, and higher costs than the proposed dike.

### Nonstructural Measures

As an alternative to the diking at Middleburg, nonstructural measures were considered to supplement the three planned floodwater retarding dams. These measures include floodproofing and relocating buildings in the remaining 100-year flood plain.

Relocation was considered for residences which met any of these criteria:

- (1) First-floor flooding at the 10-year frequency flood with the dams in place;
- (2) Two feet of water on the first floor at the 100-year frequency flood with the dams in place;
- (3) Three feet of water around the house at the 100-year frequency flood with the dams in place. All relocations would be handled according to the requirements of the Uniform Relocation Assistance and Real Property Acquisition Policy Act of 1970.

Floodproofing would be applicable to all other residences and all nonresidence structures within the remaining 100-year flood plain. Floodproofing measures include jacking up buildings, addition of concrete or block walls, installing check valves in sewage lines, installing water tight bulkheads or doors and windows, and grading and landscaping. A flood warning system would be required to provide ample time to install bulkheads and evacuate the flood plain.

Relocation would apply to 16 residences, and floodproofing would be used on 22 residences and 16 nonresidence properties. The cost of this alternative would be about \$1,468,000 including \$294,000 in local cost. The level of protection would be less than under the selected plan because yards, roads, utilities, and the borough park would still be subject to flooding. Emergency vehicles would still be hindered in responding to calls during flood periods and commercial and industrial activities would be interrupted. A false sense of security may develop from floodproofing, as people may be tempted to stay in their homes and risk isolation.

### No Project Alternative

The no project alternative consists of the ongoing land treatment program and the one installed dam. The land treatment program is similar to the accelerated land treatment program proposed in the planned project except on a smaller scale.

Even with the ongoing land treatment, the watershed experiences water and related land resource problems. Flood damages would continue to average about \$352,400 1/ annually and would increase without a program of flood plain management. Favorable environmental impacts of the planned project would not be realized. This alternative would eliminate any adverse effects of the project but it would not meet the sponsors' objectives of flood prevention, providing public water oriented recreation opportunities, and developing a municipal water supply.

---

1/ 1973 prices

## VI. SHORT-TERM USES VERSUS LONG-TERM PRODUCTIVITY

The present land use in the watershed is estimated to be 31 percent cropland, 53 percent woodland, 12 percent pastureland and hayland, 2 percent residential, community services, and commercial-industrial land, and 2 percent transportation services and other land. The greatest portion of the population is centered in communities in the valley areas. New development is primarily scattered along major and minor transportation routes with a few new subdivisions in or adjacent to the larger boroughs. This scattered growth is rapidly changing the county's rural image and character.

Agriculture remains a prominent feature of the landscape, although each year it plays a lesser role in the county's economy. In many declining agricultural areas, the once cleared land is slowly reverting to woodland through natural successional changes. 1/

County officials have developed plans to direct the future growth of Snyder County in a manner to preserve the greatest amount of open space and productive agricultural land for future generations, while providing for the demands for urbanization.

Two recently passed laws in Pennsylvania help protect land and water uses in the State. The Flood Plain Management Act administered by the Pennsylvania Department of Community Affairs and the Storm Water Management Act administered by the Pennsylvania Department of Environmental Resources will encourage sound planning and management of flood plains and storm waters.

Regulations of the Department of Environmental Resources adopted to administer Chapter 102 of the Clean Streams Law will have a direct bearing on land use. These regulations require an erosion and sediment control plan to be developed and implemented for all earthmoving activities. The Snyder Conservation District reviews sediment and erosion control plans involving earthmoving in excess of 25 acres and provides technical assistance in the preparation and implementation of the plans.

The conservation district and the U. S. Department of Agriculture, Soil Conservation Service, will provide technical assistance to local units of government in planning land use regulations and judging the effectiveness of sediment and erosion control plans when requested.

The Middle Creek Project, when completed, will provide flood protection, recreation, water supply, and open space for the community. The amount of sediment produced during construction will be reduced by erosion and sediment control measures.

---

1/ "Recreation Plan," Snyder County Planning Commission, September 1973.



The project will preclude long-term use of 201 acres of land under the dams, spillways, permanent pools, dike, and floodway. In addition, another 308 acres will be subject to periodic flooding.

The project will enhance the land resources of the watershed because the area reserved by the dams, spillways, and floodpools will be open space protected from development. The vegetated open areas will provide habitat for wildlife. The permanent pools will provide 167 acres of lake fishery.

Future usefulness of structural measures for reducing damages will continue beyond their 100-year evaluation period. Refer to Planned Project, Structural Measures section for an explanation.

The watershed is in Water Resources Council Region 02 (Middle Atlantic Region) and Sub-region 05 (Susquehanna River Basin). The Water Resources Council total designation is 02050301. Within the Pennsylvania section of the Susquehanna River Basin, there are 17 Public Law 566 projects in various stages of development.

There are three watershed projects in the operations stage. They are: Middle Creek, Briar Creek, and Nescopeck Creek. There are three watershed projects in the planning stage. They are: the Upper Tioga River, Quittapahilla Creek, and Chickies Creek. There are six watersheds with active applications for potential planning: Cowanesque River Tributaries, Kishacoquillas Creek, Bentley Creek, Little Mahanoy Creek, Wiconisco Creek, and Spring Creek. Four watersheds have been completed. They are: Marsh Creek, Mill Creek, North Fork of Cowanesque, and Martin Creek.

The Middle Creek Watershed Project Work Plan was reviewed and coordinated with appropriate Federal, State, and local agencies and is compatible with other water resource projects. The cumulative environmental effects within the river basin will include: reducing flooding; providing recreation opportunities; preserving open space; improving wildlife habitat; and reducing erosion and sedimentation.



## VII. IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

There will be 15 acres used for dams and spillways. These include 6 acres of bottomland woodland, and 9 acres of old field reverting back to hardwoods. Four acres of old field will be used for the floodway (PA-639). Four acres of woodland and 11 acres of old field will be used for the dike (PA-640).

Permanent pools will inundate 53 acres of bottomland woodland, 5 acres of upland woodland, 35 acres of old field in various stages of succession, 53 acres of cropland, 7 acres of pasture, and 14 acres of other land uses including roads, water, and residential. Three of these acres are prime agricultural land and 90 acres are farmlands of statewide importance. During periods of storms, there will be as much as 308 acres temporarily flooded. These include 12 acres of prime agricultural land and 262 acres of farmland of statewide importance. This temporary flooding will prohibit some intensive land uses that are not compatible with occasional inundation.

The 201 acres of land occupied by dams, sediment pools, spillways, dike, and floodway will be permanently committed to the project. Land in the floodpools will also be committed to the project, although use will be less restriction.

The capital, land, material resources, and fuels used for construction, as well as labor and management will be irreversibly committed to the project.

#### VIII. CONSULTATION AND REVIEW WITH APPROPRIATE AGENCIES AND OTHERS

There has been close coordination throughout the planning process between the Soil Conservation Service and the local sponsors. Early in the planning of this project, several meetings were held in order to insure that sponsors' objectives were fully understood. During this time, SCS provided information on possible alternatives which would achieve the sponsors' goals. As information was generated about these alternatives, it was presented to the sponsors through meetings and informal contacts by the local SCS office.

In addition to the local sponsors, the following agencies have been consulted in the planning process and the environmental assessment: Pennsylvania Fish Commission; Pennsylvania Game Commission; U. S. Fish and Wildlife Service; State Conservation Commission; and the Pennsylvania Department of Community Affairs, U. S. Forest Service, U. S. Geological Survey, and U. S. Environmental Protection Agency.

In addition, the sponsors and SCS have felt that the public must be kept informed of the progress of this project. This has been accomplished by various news articles and public meetings. These public meetings were announced in local papers in an effort to obtain the maximum input from local citizens. The meetings were specifically planned to inform the public and allow them the opportunity to express their feelings and provide information to sponsors and planners. These public meetings were also used as a means to reveal the findings of the environmental assessment and solicit public comment. Public meetings were held on July 20, 1976; November 9, 1976; February 15, 1977; November 21, 1977; and January 9, 1978.

A public meeting to review the draft EIS and receive local public comment was held June 12, 1979, at the Middleburg Courthouse. A local concerns expressed at this meeting related to the construction of the dike (PA-640) at Middleburg. The concerns centered on how the dike would be laid out to insure protection from storms up to the 100-year event, particularly at the outlet of the "Gut" into Stump Run which, in turn, outlets into Middle Creek. Planning has recognized the flood protection needs of this area. The citizens who have local knowledge of the flooding here will be consulted during the design of PA-640 to further insure that the flood prevention dike gives the desired protection.

The following agencies have been asked to comment on the Draft EIS:

- Department of the Army
- Department of Commerce
- Department of Health, Education, and Welfare
- Department of the Interior
- Department of Transportation
- Advisory Council on Historic Preservation
- Susquehanna River Basin Commission
- Office of Equal Opportunity, U. S. Department of Agriculture
- Environmental Protection Agency
- Federal Power Commission

Water Resources Council

State Conservation Commission of the Pennsylvania Department of  
Environmental Resources (Governor's Designated Agency for Review  
and Approval of PL-566 Projects)

Governor's Budget Office (State Clearinghouse for all State agencies)

SEDA-COG (Regional Clearinghouse)

Pennsylvania Fish Commission

Letters of comments (see Appendix C) were received from:

Department of the Army, Corps of Engineers  
Federal Energy Regulatory Commission  
U. S. Department of Agriculture, Office of the Secretary  
U. S. Department of Commerce, the Assistant Secretary for Science and Technology  
U. S. Department of Commerce, NOAA, Environmental Data and Information Service  
U. S. Department of Commerce, NOAA, National Weather Service  
U. S. Department of Health, Education, and Welfare, Public Health Service  
U. S. Department of the Interior, Office of the Secretary  
U. S. Environmental Protection Agency  
Susquehanna River Basin Commission  
Pennsylvania Department of Transportation  
Pennsylvania Department of Environmental Resource, Bureau of Soil and Water Conservation  
Pennsylvania Fish Commission  
SEDA - Council of Governments (areawide clearinghouse)  
Snyder County Planning Commission

Responses to comments received:

Department of the Army Corps of Engineers

Comment: The construction of both dams, the floodway, the floodwall, and the relocation of the gut channel will require a Section 404 permit.

Response: Agreed. The sponsors will be applying for this permit.

Federal Energy Regulatory Commission

Comment: Consideration should be given to the inclusion of hydroelectric power as a project function at this time.

Response: Although hydroelectric power generation is not within the scope of Public Law 83-566, the local sponsors are investigating the hydroelectric potential of PA-636. They attended a meeting sponsored by the Pennsylvania Public Utilities Commission on Small Scale Hydroelectric Potential in September. The sponsors have been given the Federal Energy Regulatory Commission comment letter that suggests consulting with Mr. Hebson, the New York Regional Engineer.

U. S. Department of Agriculture, Office of the Secretary

Comment: There are no minority residents living in the watershed.

Response: Correct. Therefore, the project would affect no minorities.

U. S. Department of Commerce, NOAA, Environmental Data and Information Service

Comment: A brief description of the area's climate--with emphasis on flood-producing events--should be included.



Response: Agreed. This has been added in the Impacts on Flood Damage section.

U. S. Department of Commerce, NOAA, National Weather Service

Comment: In view of the stated annual flood damages of \$352,000, it is considered an oversight not to include a flood warning system as a companion item to structural measures or as a nonstructural measure.

Response: Agreed. The EIS should have stated that an adequate flood warning system has been implemented by the local sponsors through the Local Emergency Management Agency.

U. S. Department of Commerce, the Assistant Secretary for Science and Technology

Comment 1: The statement should include details on floods and flooding that this program is intended to control, as well as area rainfall, past flooding, and damages.

Response: Agreed. The summary within the Impacts on Flood Damage section has been expanded. Additional basic data upon which the hydrology and economics are based are on file in the Soil Conservation Service State Office, Harrisburg, Pennsylvania.

Comment 2: A map of the present 100-year flood plain compared with the anticipated 100-year flood plain resulting from the project completion should be presented.

Response: These maps, based on the original hydrology and structure designs, were completed for Middleburg, Beavertown, and Beaver Springs and were included in the Middle Creek Watershed Work Plan of 1965. At present, the Susquehanna River Basin Commission, HUD - Flood Insurance Administration, and SCS are in the process of resolving differences in the hydrologic data. When this is resolved, the revised mapping will be developed for local use.

Comment 3: Figure 3 is mislabeled.

Response: The list of figures has been corrected.

Comment 4: The statement on page 16: "Eighty-seven residences will be completely protected from the 100-year flood." is misleading.

Response: Agreed. The 87 residences will be protected from all floods up to the flood that has less than a one percent chance of occurring in any one year.

Comment 5: A table of the water quality measurements referred to on page 26 would be helpful and should be added.



Response: The water quality data is available in the aquatic biology report referenced on that page. The quality of the streams is based not only on water quality sampling but also on indicator species of macro-invertebrates and fish. The basic data used in the determination of stream quality would be too voluminous to include in the EIS.

U. S. Department of Health, Education and Welfare, Public Health Service

Comment 1: Water quality for each affected watercourse or water body, especially temperature increases related to PA-636, should be provided in the EIS.

Response: The changes anticipated in water quality are addressed in the Impacts on Water Quality section. Temperature was singled out in the EIS as the only adversely affected characteristic. Recent discussion with the Pennsylvania Fish Commission has led to revised estimates for temperature increases at the outlet of PA-636. Because of the dissimilarity in reservoir characteristics, particularly in the time it takes water to flow through the reservoir, the maximum increase is expected to be 4 to 5° F. Accordingly, no adverse affects are anticipated because of the installation of the remaining project features.

Comment 2: The eutrophication potential of Sites PA-636, PA-637, and PA-638 should be addressed in the EIS. A discussion of the compatibility of the expected trophic status of each lake with the planned project benefits and the designated use classifications of the applicable water quality standards should be provided.

Response: The potential trophic state of the lakes are anticipated to be compatible with sponsor's desires of water-oriented recreation and water supply. Both PA-636 and PA-637 will be mesotrophic lakes. The Pennsylvania Fish Commission will monitor and manage these lakes as warm water fisheries. PA-638 is anticipated to be an oligotrophic lake. The Spring Township Water Authority will monitor and manage this lake as a water supply reservoir.

Comment 3: Fish cleaning facilities should be provided to control odor, pollution, and other nuisances from indiscriminate fish cleaning and disposal in the lake and along its shoreline.

Response: The Pennsylvania Fish Commission has not encountered this problem at any of its managed lakes as most fisherman take their catch home to clean. However, fish cleaning facilities will be suggested to the sponsors to alert them to potential future problems.

Comment 4: Will the treated lake water comply with the National Interim Primary Drinking Water Regulations?

Response: The treated lake water will be the responsibility of the Spring Township Water Authority and will comply with the State and national drinking water regulations.

Comment 5: Are the proposed collection and treatment costs economically competitive with other possible water supply alternatives.

Response: The collection and treatment costs are the responsibility of the Spring Township Water Authority and are nonproject costs. They have assured SCS that the costs are economically competitive with any other water supply alternatives.

Comment 6: What other potable sources of water exist in the project area?

Response: The only other potable sources of water in the project area are aquifers available through well drilling.

Comment 7: The restrictions to be imposed upon lake use, upstream watershed practices, dischargers in the watershed, and other measures to preserve the quality of the proposed lake for a water supply should be mentioned.

Response: Restrictions on the lake itself will be the responsibility of the Spring Township Water Authority. The drainage area for the lake is an undeveloped Pennsylvania State forest with no future development anticipated.

Comment 8: Restrictions on boating need to be discussed that show how the health and welfare of the users will be protected.

Response: The Pennsylvania Fish Commission will control boating activities to assure safety. They normally limit, as necessary, the type of boat motors, the length of boats, and the hours of lake use.

Comment 9: Mosquito, arthropod, rodent, and noxious plant control needs to be addressed.

Response: Control plans for these are the responsibility of the agencies that operate the individual reservoirs. The State Health Department will be consulted when necessary.

Comment 10: The EIS should include a summary of the Section 404(b) evaluation performed by the Corps of Engineers for the impact associated with the construction of the project.

Response: Section 404 evaluations will not be completed until after individual structures are designed. The designs of the structures will not be completed until after the EIS is finalized.

Comment 11: The project's compliance with Executive Order 11990, Protection of Wetlands, should be addressed.

Response: Agreed. This has been added to the Impacts on Land Use section.

Comment 12: Compliance with Executive Order 11988, Flood Plain Management, should be addressed in the EIS.

Response: Agreed. This is addressed in the Impacts on Land Use section.

Comment 13: The feasibility of incorporating a very small hydroelectric power plant into the proposed dam works should be examined.

Response: See the Federal Energy Regulatory Commission comment.

U. S. Department of the Interior, Office of the Secretary

Comment 1: The statement should include more specific information on existing flood flow and water quality characteristics of surface water sources and it should address the possibility of effects of impoundments on ground water levels.

Response: Flood flows and damages are discussed in detail in the Watershed Work Plan, February 1965. Basic data that was used in the hydrologic analysis of the watershed gave us the impacts as discussed in the Environmental Impact section (Impacts on Flood Damage). This discussion and table of effects of the most important flood, the 100-year flood, seems adequate. Water quality is discussed in Comment 5, U. S. Department of Commerce, the Assistant Secretary for Science and Technology. The impoundments will have a very localized impact on the surrounding water table. The effect will not go beyond the areas controlled by the sponsors.

Comment 2: Steps to be taken in construction of wells for recreational areas and plans for periodic testing to assure drinking water of good quality for visitors should be at least briefly indicated.

Response: The sponsors will comply with Title 25, Rules and Regulations of the Department of Environmental Resources, that govern the protection of natural resources (water resources). This compliance will assure the safety of the drinking water at the recreational sites.

Comment 3: The statement should note that land for the project already has been acquired by the State and local sponsors and in-the-ground mineral resources (mainly stone) are essentially committed.



Response: Although this is true, we feel the fact that the land was acquired was irrelevant to the documentation of environmental consequences.

Comment 4: No information has been found on the geology of either of the two damsites or on the type of earthfill or rockfill to be used for the dams.

Response: Geologic investigations by competent SCS geologists revealed that ample borrow material of sufficient quality and quantity is available at the sites. This detailed data is available at the SCS State Office in Harrisburg.

Comment 5: It is stated that the emergency spillways for the dams will be excavated into rock on each abutment or on one abutment, but the type of rock has not been identified.

Response: One spillway at PA-636 will be in weathered shaly siltstone. The other PA-636 spillway will be in nondurable sandstone and weathered shaly siltstone. One portion of the PA-638 spillway will be in weathered shales and shales interbedded with sandstone. The other portion will be in hard quartzite and quartzitic sandstone.

Comment 6: Land treatment measures are planned to help stabilize eroding agricultural land, yet the nature of soil and its susceptibility to erosion have not been discussed.

Response: The six soil associations within the watershed have a wide variety, ranging from steep woodland soils of Shade and Jack's Mountains, down to the flood plain soils along the stream. Detailed information on all the soils of the watershed are available in the Interim Soil Survey Report for Snyder County and at the Middleburg SCS Office. Because land use is not projected to change greatly during the life of the project, the level of soil loss was used as an indicator of the size of the erosion problem both present and in the future. Information on the nature of soil and its susceptibility to erosion would be more applicable if large land use changes, accompanied by major erosion problems, were anticipated.

Comment 7: Erosion control at the construction sites need to be more thoroughly discussed.

Response: The details of the sediment and erosion control plan will be developed at the time of design of the individual structures. The sediment and erosion control work will comply with regulations implementing Section 102 of the Pennsylvania Clean Streams Act and requirements of the Pennsylvania Department of Environmental Resources (see EPA comment 17).

Comment 8: The only information (page 25, paragraph 3) on any specific soil condition is a brief reference to "upland sites with drier, well drained soils" (line 14), but neither the upland nor the bottomland soils have been described.

Response: This paragraph of the EIS describes the impact the floodpools will have on vegetation. Emphasis was placed on the frequency, duration, and season of flooding because these factors have a much greater impact on vegetation than does soil condition.

Comment 9: The final statement should briefly discuss the methods used for "the preliminary archeological and historic survey."

Response: Agreed. See the Impacts on Archaeological and Historical Resources section.

Comment 10: The statement should include the views of the Pennsylvania SHPO on archeological and historical resource matters.

Response: The letter from the State Historic Preservation Officer, Mr. William J. Wewer, has been added as Appendix C.

Comment 11: The statement should include any memorandum of agreement developed concerning mitigation of adverse effects to the Gross Bridge, a covered bridge on the National Register.

Response: Actions concerning the Gross Covered Bridge will follow the Procedures for the Protection of Archeological and Historical Properties Encountered in SCS-Assisted Programs (CFR, Title 7, Chapter VI, Subchapter F, Part 656). The complete documentation of the bridge, its existing and future locations and the plan to move it will be forwarded to the Advisory Council on Historic Preservation along with the SHPO's concurrence. Concurrence of the Advisory Council will result in a determination of "no adverse effect."

#### U. S. Environmental Protection Agency, Region III

Comment 1: We presume that economic useful life of the protected buildings and the building sites will match the longevity of the flood control system.

Response: Correct.

Comment 2: Are the cost figures on pages 15 and 35 supposed to be mutually reflective?

Response: The cost figures on page 35 were only for a portion of the planned project. These were unnecessary and have been deleted.



Comment 3: On page 15, has the annual operation and maintenance cost of \$157,300 (to presumably come from the local populace) been included in the total cost/benefit analysis?

Response: Yes.

Comment 4: Has the cost of preserving the covered bridge noted on page 29 been included in the landrights and relocations costs?

Response: No. This was inadvertently left out. The estimated cost is \$12,000 with an average annual cost of \$407. Because this would not appreciably affect the benefit/cost comparison we feel a reworking of the project cost section is unnecessary.

Comment 5: It might be helpful to include a total and internalized cost breakdown reflecting the construction costs as well as O&M and user costs so that a clear picture of total costs is presented.

Response: Table 2 has been revised to show individual structural costs. The estimated O&M costs includes the cost of operation and maintenance of all structures and the recreational facilities as well as the necessary replacement of recreational facilities. The Public Law 566 Act allows the owners to charge user fees to cover these costs. The decision to charge a fee will be made when the need arises.

Comment 6: The costs of maintenance and operation to be borne by the user population should be presented so that a comparison between annual costs and benefits can be drawn.

Response: This information is presented in detail in the Watershed Work Plan, February 1965. Table 4 contains installation and operation and maintenance costs, Table 5 contains flood damage reduction benefits, and Table 6 contains a comparison of all benefits and costs.

Comment 7: Is PA-638 going to replace or only supplement the present water supply source and if it replaces the source, why?

Response: It will replace the existing source because the quantity of water available during dry seasons of the year is becoming inadequate to meet the demand.

Comment 8: We presume the dam mentioned on page 35 is the same one mentioned in paragraph 2 on page 27.

Response: The dam mentioned on page 35 within Channel Modification is a 6-foot high concrete dam in Middleburg that is owned by the Borough of Middleburg. The dam in paragraph 2, page 27, that creates Middle Creek Lake is 12 miles downstream of Middleburg and owned by the Pennsylvania Fish Commission.

Comment 9: What effect does the dam (dam in Middleburg, comment 8) have on downstream flooding?

Response: The dam acts as a grade stabilization structure with no flood retarding characteristics. It increases the frequency of flooding by artificially raising the water surface at the upstream end of town and allowing overflow into the "Gut." The proposed dike would eliminate this source of flooding.

Comment 10: Will the dam (comment 8) be detrimental to the dike and associated work at Middleburg?

Response: No. The grade stabilizing effects of the dam will have a positive impact on Middleburg Dike.

Comment 11: Is the dam (comment 8) maintained in accord with SCS standards?

Response: No. The dam is owned and maintained by the Borough of Middleburg, and must satisfy Pennsylvania Department of Environmental Resources' dams and encroachments regulations.

Comment 12: The land use changes associated with the structural measures are vague.

Response: The land uses affected by the structural measures are specifically outlined in Tables 4-7. All disturbed areas will be seeded with adapted vegetation. Landscape treatments will include grass, shrub, and tree plantings to reduce visual impacts.

Comment 13: What measures are to be instituted in those areas (comment 12) to prevent encroachment?

Response: All landrights will be by fee title or easement to insure the integrity, operation and maintenance of structural measures.

Comment 14: What encroachment preventive measures will be applied in Middleburg when the town will receive the protection from the 1 percent flood?

Response: The areas within Middleburg are already privately developed or are owned by the borough itself. The borough will therefore control encroachment.

Comment 15: EPA requests that SCS present a more detailed total sediment and runoff picture for the watershed to include information from the 1977 county and city book (trend toward reduction in the number of farms).

Response: We agree that the county has a trend towards a reduction in the number of farms. This fact along with the extremely low erosion taking place on woodland and grassland leaves most of the watershed adequately protected from erosion. But a need for land treatment on cropland still exists. Continued installation of the land treatment measures will reduce the cropland erosion to tolerable levels, protect the productivity of the land for future generations, and reduce downstream impacts.

Comment 16: A description of the extractable resource picture should be included so that any anticipated mining will not overwhelm the runoff and sediment control programs or water quality as described in the draft EIS.

Response: The only extractable resource currently being utilized is limestone. The watershed lies outside the coal producing regions of the State. Therefore, mining should not interfere with runoff and sediment control programs or water quality.

Comment 17: What measures will be used during construction of PA-638 to protect the trout fishery downstream?

Response: Erosion and sediment control plan features will be installed at the PA-638 construction site. This will comply with rules and regulations of Pennsylvania Department of Environmental Resources that were adopted pursuant to the Pennsylvania Clean Streams Law. The plan will include a combination of these features, if necessary: pump settlement basins, diversions, culvert stream crossings, rock filter dams, earthfill settlement basins, temporary mulching and seeding, and straw bale filters. PA-638 will include a low flow port to maintain stream flows. The water quality and temperature of the downstream flows will be relatively unchanged so that the trout habitat is maintained.

Comment 18: Is the dam above Middleburg the barrier to fish migration mentioned on page 27, second paragraph?

Response: Middle Creek Lake (second paragraph, page 27) is approximately 1.2 miles downstream of Middleburg. It is a Pennsylvania Fish Commission reservoir and is a barrier to fish migration from the Susquehanna River, 2.5 miles further downstream. The six-foot high dam above Middleburg is also a barrier to fish passage.

Comment 19: Will the disrupted terrestrial habitat be replaced by an equally valuable aquatic habitat?

Response: The disrupted terrestrial habitat, while having value for wildlife species, is not considered to be a significant loss. The aquatic habitat created at PA-636 and PA-638 will add significant aquatic habitat to the watershed.

Comment 20: No mention is made of any wetlands within the watershed that may require special attention or preservation.

Response: This has been added to the Impacts on Land Use section.

#### Pennsylvania Department of Environmental Resources

Comment 1: On page 1, paragraph 4, it is overstated that Snyder Conservation District has been granted enforcement authorities for erosion and sedimentation control. An agreement has been signed between the Snyder district and DER allowing the Snyder District to make inspections of earthmoving activities on behalf of DER which could lead to enforcement actions by the Department of Environmental Resources under the Clean Streams Law.

Response: Agreed. The EIS has been corrected accordingly.

Comment 2: The first paragraph on page 38 describing the land use, population, and development patterns in Snyder County is misleading. Population centers along the Susquehanna River are not located in the Middle Creek Watershed such as this paragraph leads the reader to believe.

Response: Agreed. The EIS has been corrected accordingly.

Comment 3: Also on page 38, the fourth paragraph mentions the Flood Plain and Storm Water Laws passed in 1978. Basic administrative responsibility for the Flood Plain Law will be the Pennsylvania Department of Community Affairs and the Pennsylvania Department of Environmental Resources for the Storm Water Law.

Response: Agreed. The EIS has been corrected accordingly.

#### Pennsylvania Department of Transportation

Comment 1: Valid, legal agreements for flood easements on State legislative routes have not been maintained.

Response: The sponsors have been given a map and elevations of the normal pool, the 25-year floodpool, and the design high water that are based on the current design for PA-636. A legal agreement for the flood easements on State LR's that meets the approval of the Pennsylvania Department of Transportation will be developed by the Commissioners of Snyder County this year. The end anchorages and metal shields included in the flood closures at LR 25 (U.S. Route 522) will be designed with Pennsylvania Department of Transportation approval. The operation of



the closure devise will be covered by a Highway Occupancy Permit or other legal agreements, as necessary.

Comment 2: An assessment should be made of the secondary impacts on State highways caused by increased vehicular traffic going to and from the two recreational developments.

Response: Agreed. An evaluation of the expected vehicular traffic to occur near PA-636 and PA-637 has been completed. This involves anticipating the traffic during a peak use day (summer Sunday) and is based on the Soil Conservation Service Recreation Ready Reference 1977 and the planned facilities at the two sites. PA-636 will attract approximately 200 vehicles for picnicking and 60 vehicles for boating and fishing on a peak use day. This will involve LRs 54024, 54025, 54026, and 54027 and/or 54048.

PA-637 will attract approximately 390 vehicles for picnicking and swimming and 80 vehicles for boating and fishing on a peak use day. This will involve LRs 54028 and/or 54029. The vehicle increases will, for the peak use day, approach the average daily traffic on LRs as recorded by PennDOT in 1978. The use on other than peak use days will be considerably lower. The resulting impacts will be an overall increase in the traffic load on the LRs involved along with a comparable increase in road maintenance. The existing State highways appear capable of handling the anticipated increase.

#### Pennsylvania Fish Commission

Comment 1: Where and how can the boat launching facilities be included in the Troxelville Access Area below the dam?

Response: The description of the Troxelville Access is in error. It is planned to provide picnicking, trail access, drinking water, sanitary facilities, and parking only.

Comment 2: On PA-636, the Pennsylvania Fish Commission has requested a change in the outlet structure to facilitate management practices of lowering and raising the recreational pool level for esocid spawning. This is not discussed in the EIS.

Response: The proposed change is subject to sponsor approval. Once this is accomplished, the modified outlet structure will be installed at PA-636. The only significant impact anticipated from this change is an improvement in the fishery resource through management.

Comment 3: On PA-637, the Pennsylvania Fish Commission has requested the addition of a low level release to provide cooler water below the dam. This change should be included in the EIS because of its effect on the creek below the dam.



Response: The feasibility of this proposal has not been thoroughly investigated. The modification will be installed if it proves feasible and meets the approval of SCS and the Pennsylvania Fish Commission. The only significant impact anticipated from this change is a lessening of the water temperature impacts caused by PA-637 on the stream below the dam. This should lengthen the downstream put-and-take trout fishing.

SEDA - Council of Governments - June 7, 1979

Comment: The project does not appear to conflict with known local or regional plans and programs. We know of no objections to the use of Federal funds for this project. Therefore, this letter certifies that you have fulfilled your responsibilities to the Areawide Clearinghouse under Federal Circular A-95 and may proceed with Federal application submission requirements.

Response: None required.

SEDA - Council of Governments July 9, 1979

Comment 1: Flood plain management ordinance either used or being developed by local governments do not "prohibit new flood plain development" as stated. Rather, these ordinances seek prudent development adjusted to flood risk and installed according to minimum standards.

Response: Agreed. The Impacts on Flood Damage section has been changed appropriately.

Comment 2: The completed project can be expected to encourage development within the flood plain, particularly in the area protected by the dike/wall at Middleburg. In another sense, the project will decrease the lateral extent of the regulatory flood plain, the 1 percent or 100-year flood plain, and thus remove land use controls in these areas.

Response: Because the flood plain that will be protected by the dike is either already developed or controlled by the Middleburg Borough, no major development is anticipated.

Comment 3: The catastrophic potential of levee-wall systems, should overtopping occur, should be included in the EIS.

Response: Agreed. This has been added to the Impacts on Flood Damage section.

Comment 4: The use of the National Flood Insurance Program as a means to offset the financial burden of flooding should be incorporated as an ongoing nonstructural measure that needs to be sustained.

Response: Agreed. The National Flood Insurance Program is an ongoing measure that should be sustained.

Comment 5: Accurate flood plain mapping in the Middle Creek Watershed suitable to determine flood insurance rate is needed, and should be noted.

Response: Agreed. See Comment 2 of U. S. Department of Commerce, the Assistant Secretary for Science and Technology.

Comment 6: Characteristics of the archeological site should be described in the EIS.

Response: Agreed. This has been added to the Impacts on Archaeological and Historical Resources section.

Comment 7: The term "flood free" should be deleted and one expressing a reduction in flooding potential or probability be inserted instead.

Response: "Flood free" has been deleted from the statement. The reduction in flooding potential is described elsewhere.

Comment 8: The use of flood insurance to offset flood damages and emergency expense costs should be incorporated in the strategy available to flood plain property owners to deal with the financial burden of flooding.

Response: Flood insurance work is underway. See Comment 2 of U. S. Department of Commerce, the Assistant Secretary for Science and Technology.

Comment 9: A flood warning system will be necessary throughout the watershed even if the proposed project is built as planned.

Response: An adequate flood warning system is in place. See comment of the U. S. Department of Commerce, NOAA, National Weather Service.

#### Snyder County Planning Commission

Comment: This Commission is in agreement with the findings of the EIS, and will be happy to comment on the completed application.

Response: None required.

## Susquehanna River Basin Commission

Comment 1: The floodway and dikes will be recommended for inclusion in the SRBC Comprehensive Plan in the near future.

Response: Good. This should have been done by SCS when the Plan was adopted.

Comment 2: The project's costs should be updated from the 1973 price base shown.

Response: Table 2 was updated and does show 1978 prices. The price base listed which was wrong has been corrected.

Comment 3: The project costs should be separated by individual feature.

Response: Table 2 has been revised to show the individual costs.

Comment 4: The treatment of the nonstructural measures alternative does not appear to be very extensive. Why didn't the evaluation include any portion of the watershed downstream of Middleburg?

Response: The nonstructural alternative to PA-640 was investigated in adequate detail to assess its merits and faults and compare it with the other alternatives. The watershed boundary lies just downstream of Middleburg, thus there was no reason for further investigations.

Comment 5: The discussion on economic and social impacts appears somewhat optimistic in referring to the potential for generating \$33,800 in wages through installation, operation and maintenance of the flood protection project. This does not seem to be a substantial amount in terms of its impact on the local economy. The construction and operation of the existing dam (PA-637) does not appear to have made a marked contribution to the local economy other than that temporarily experienced during construction.

Response: These benefits are derived through the expenditures of Federal funds. They represent the use of labor that would otherwise be under-employed or unemployed. The procedure used in determining these benefits is provided by the U. S. Department of Commerce and based on analysis of other public works projects.

Comment 6: The discussion on short-term uses versus long-term productivity states that "the project will enhance the land resources of the watershed because the area reserved by the dams, spillways, and floodpools will be open space protected from development." Such land reservation is obvious but the multipurpose concept of the remaining projects (impoundments) could well generate additional residential and/or commercial development in this vicinity due to the very nature of the project.

Response: Agreed.

Comment 7: Should recently revised hydrology be applied in a reevaluation of the project or has it been determined that the original hydrology developed for this project shall continue to prevail?

Response: The hydrology used in the project planning is adequate for the economic evaluation of the watershed. Current hydrology investigations indicate increases in uncontrolled discharges (without the project) of up to 30 percent with a corresponding increase in flood damages. The current investigations also indicate only a 5 to 10 percent increase in controlled discharges (with the proposed project features installed). This is due to the high flood reducing efficiency of the structures. Therefore, the benefits would be increased while the project costs would remain relatively constant. Thus a reevaluation of the project is unnecessary.



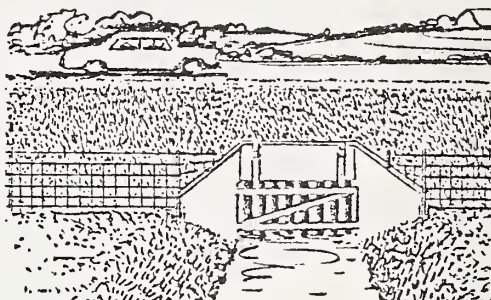
- APPENDIX A - Definitions and Illustrations of Land Treatment Practices
- APPENDIX B - Project Map
- APPENDIX C - State Historic Preservation Officer Concurrence Letter
- APPENDIX D - Letters of Comment on the Draft Environmental  
Impact Statement

DEFINITIONS OF LAND TREATMENT PRACTICES

Conservation Cropping System - Growing crops in combination with needed cultural and management measures. Cropping systems include rotations that contain grasses and legumes as well as rotations in which the desired benefits are achieved without the use of such crops.



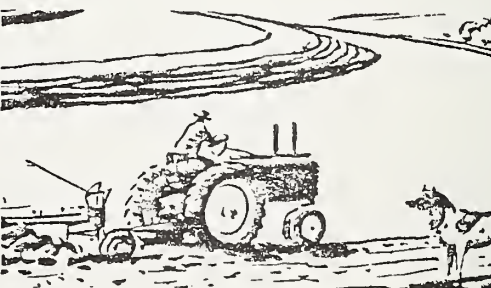
Critical Area Planting - Planting vegetation such as trees, shrubs, vines, grasses or legumes on critical areas. It is applicable on sediment-producing, highly erodible or severely eroded areas, such as dams, dikes, mine spoil, levees, cuts, fills, surface-mined areas, and denuded or gullied areas.



Diversions - A channel with a supporting ridge on the lower side constructed across the slope to intercept surface runoff and carry it at a designed velocity to a safe outlet.



Grassed Waterway or Outlet - A natural or constructed waterway or outlet shaped or graded and established in vegetation suitable to safely dispose runoff from a field, diversion, terrace, or other structure. It is applicable where concentrated runoff must be disposed of at safe velocities.



Minimum Tillage - Limiting the number of cultural operations to those that are properly timed and essential to produce a crop and prevent soil damage.

Pasture and Hayland Management - Proper treatment and use of pastureland or hayland. The purpose is to prolong life of desirable forage species; to maintain or improve the quality and quantity of forage; and to protect the soil, and reduce water loss.

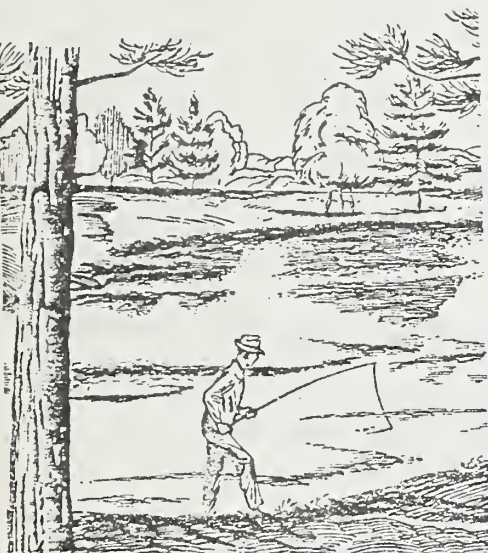
Pasture and Hayland Planting - Establishing and re-establishing long-term stands of adapted species of perennial, biennial, or reseeding forage plants.

Pond - A water impoundment made by constructing a dam or embankment, or by excavating a pit or "dugout." Ponds are constructed to provide water for livestock, fish and wildlife, recreation, fire control, crop and orchard spraying, and other related uses.

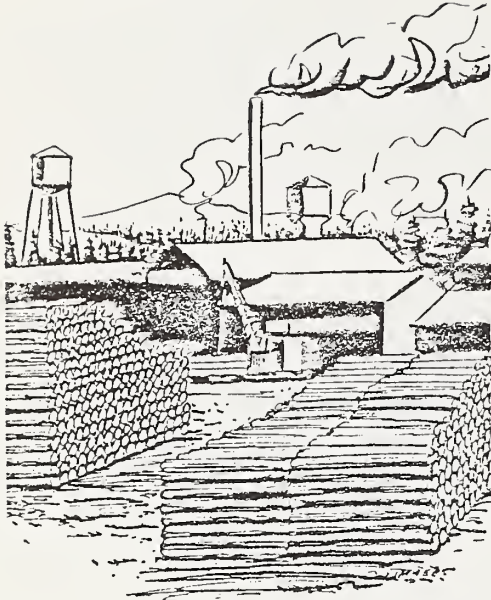
Spring Developments - Improving springs and seeps by excavating, cleaning, capping or providing collection and storage facilities.

Stripcropping - Growing crops in a systematic arrangement of strips or bands to reduce wind or water erosion. Crops are arranged so that a strip of grass or close-growing crop is alternated with a strip of clean-tilled crop or fallow, or a strip of grass is alternated with a close-growing crop.

Subsurface Drains - A conduit, such as tile, pipe, or tubing, installed beneath the ground surface which collects and/or conveys drainage water.







Tree-Planting - Planting tree seedlings or cuttings. The purposes are to establish or reinforce a stand of trees to conserve soil and moisture; beautify an area; protect a watershed; or produce wood crops.

Wildlife Upland Habitat Management - Retaining, creating, or managing wildlife habitat other than wetland. The purpose is to keep, make, or improve habitat for desired kinds of wildlife.

Woodland Improvement (Timber Stand Improvement) - Improving woodland by removing unmerchantable or unwanted trees, shrubs or vines.

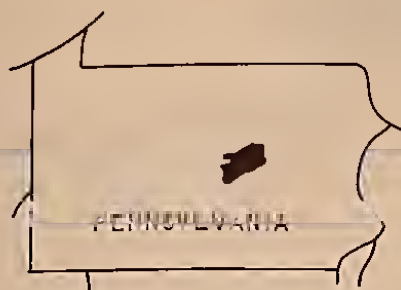
Woodland Improved Harvesting - Systematically removing some of the merchantable trees from an immature stand or all the trees from a designated part of a woodland.



0265







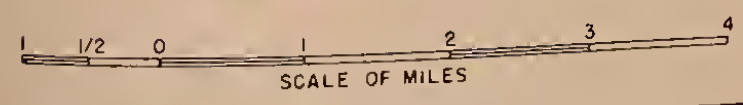
LOCATION MAP



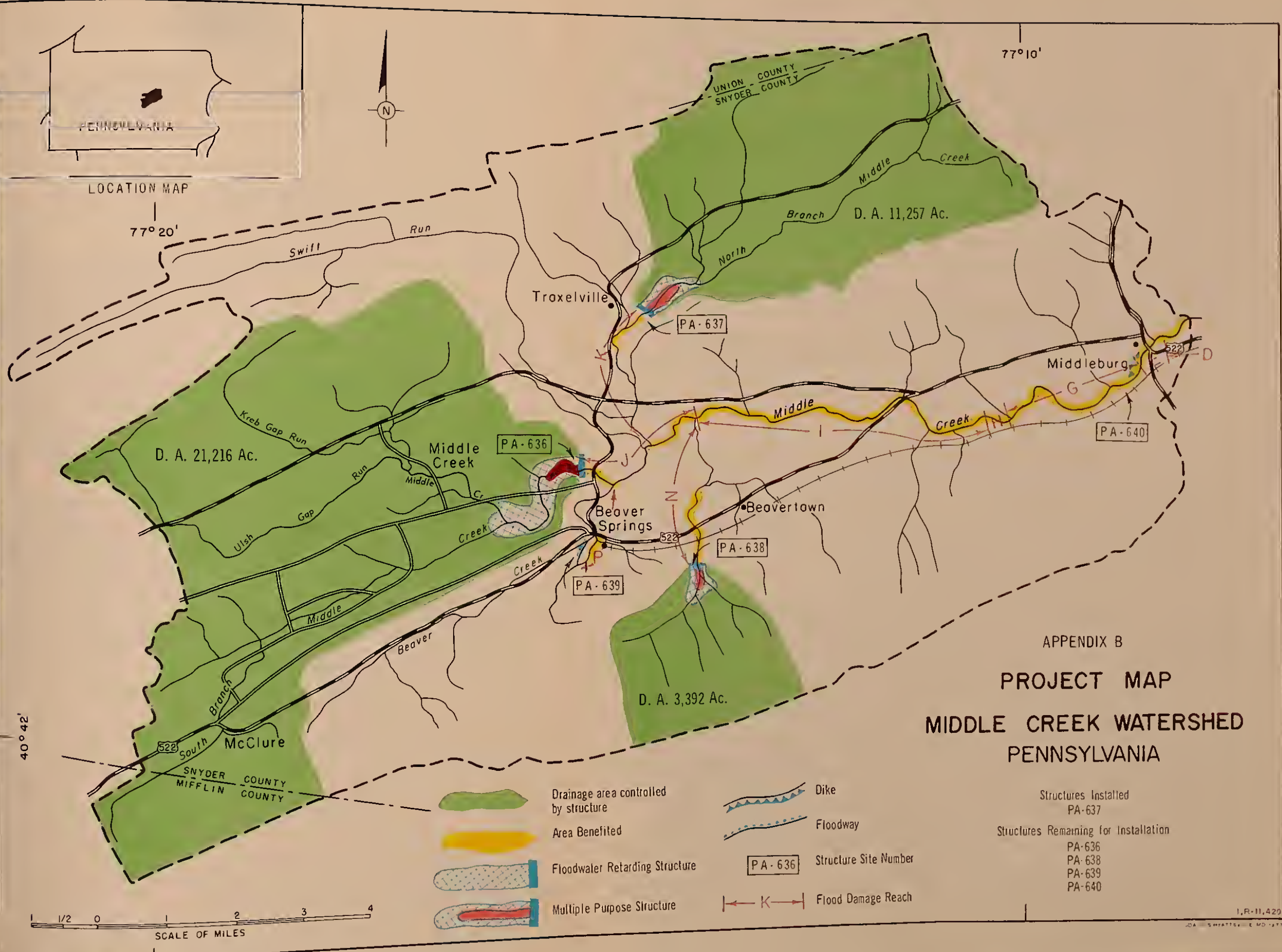
77° 10'

77° 20'

40° 42'



SCALE OF MILES



APPENDIX B

PROJECT MAP  
MIDDLE CREEK WATERSHED  
PENNSYLVANIA

- Drainage area controlled by structure
- Area Benefited
- Floodwater Retarding Structure
- Multiple Purpose Structure
- Dike
- Floodway
- Structure Site Number
- Flood Damage Reach

- Structures Installed  
PA-637
- Structures Remaining for Installation  
PA-636  
PA-638  
PA-639  
PA-640





COMMONWEALTH OF PENNSYLVANIA  
PENNSYLVANIA HISTORICAL AND MUSEUM COMMISSION  
P. O. Box 1026, HARRISBURG, PENNSYLVANIA 17120

EXECUTIVE DIRECTOR

January 14, 1977

Mr. Graham T. Munkittrick  
Box 985  
Federal Square Station  
Harrisburg, PA 17108

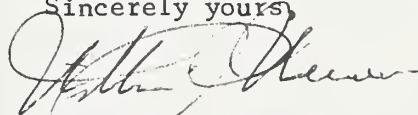
Dear Mr. Munkittrick:

This is in reference to your letters on Middle Creek Watershed project in Snyder County.

We concur with your opinion that there are no historic or archaeological resources within the project areas of sites PA-638, PA-639, and PA-640.

In PA-636, we believe that the covered bridge is probably eligible for inclusion on the National Register of Historic Places and we will proceed with the nomination process. If the bridge is raised slightly on the same site and if some provision for development is made in the area adjacent to the bridge so that it does not become derelict, there will be no adverse effect.

We also concur with your finding, that the Klinepeter site is not eligible for inclusion in the National Register of Historic Places.

Sincerely yours,  
  
WILLIAM J. WEWER

Enclosure





## APPENDIX D

### LETTERS OF COMMENT ON THE DRAFT ENVIRONMENTAL IMPACT STATEMENT



DEPARTMENT OF THE ARMY  
BALTIMORE DISTRICT, CORPS OF ENGINEERS  
P O. BOX 1715  
BALTIMORE, MARYLAND 21203

REPLY TO ATTENTION OF:

NABPL-E

27 June 1979

Mr. Graham T. Munkittrick  
State Conservationist  
U.S. Department of Agriculture  
Soil Conservation Service  
P.O. Box 985  
Federal Square Station  
Harrisburg, Pennsylvania 17108

Dear Mr. Munkittrick:

Reference is made to your letter of 9 May 1979 transmitting the Draft Environmental Impact Statement, Middle Creek Watershed Project, Pennsylvania, for Department of the Army, Corps of Engineers review.

This office has completed its review of this report and finds it adequately addresses the anticipated environmental impacts of remaining elements of the project. It is noted that a multi-purpose dam, recreation facilities, and land treatment measures have been installed previously. This project as presented would not affect any existing or proposed Corps' projects. The construction of both dams, the floodway, the floodwall, and the relocation of the gut channel will, however, involve filling and other construction activities in U.S. waters and will require a permit from the Department of the Army pursuant to Section 404, Public Law 92-500, as amended.

We appreciate the opportunity to comment on this DEIS and if we can be of further assistance, please contact us.

Sincerely yours,

*Harold W. Nelson*

WILLIAM E. TRIESCHMAN, Jr.  
Chief, Planning Division

FEDERAL ENERGY REGULATORY COMMISSION  
WASHINGTON, D.C. 20426

In Reply Refer To:

OEPR-DRB  
Cooperative Studies  
Environmental Impact Statement

JUN 28 1979

Mr. Graham T. Munkittrick  
State Conservationist  
Soil Conservation Service  
United States Department of Agriculture  
P.O. Box 895  
Federal Square Station  
Harrisburg, Pennsylvania 17108

Dear Mr. Munkittrick:

This is in response to your letter of May 9, 1979, to the Chairman of the Federal Power Commission (now Federal Energy Regulatory Commission) requesting comments on the draft environmental impact statement, Middle Creek Watershed, Pennsylvania.

The principal features of the proposed project consist of two multipurpose dams for flood control, recreation, and water supply; a 30-foot floodway; and a 3,000 foot earth dike and concrete wall.

Our review indicates that there are no existing hydroelectric projects and no natural gas pipelines in the area. Information available as of August 1978, reveals no oil or gas production within the area of the proposed project. There is no indication of any current exploratory or development drilling in the watershed areas.

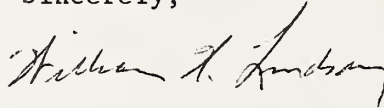
The Commission staff has made a cursory economic analysis of the possibility of including hydroelectric power at the multipurpose dam site PA-636. Based on current power values of about \$100 per kilowatt per year for dependable capacity and about 36 mills per kilowatt-hour for energy, the inclusion of about 500 kilowatts of hydroelectric power at this site is marginal. However, since the cost of fuel is expected to continue to increase faster than the cost of construction, consideration should be given to the inclusion of hydroelectric power as a project function at this time.



A more detailed analysis of the possibility of including hydroelectric power could be accomplished with more detailed hydrological data and a more defined reservoir operating procedure. Mr. Hebson, our New York Regional Engineer, is available to cooperate with you in this regard. His telephone number is 212-264-3687.

We hope that our comments will be helpful to you in the preparation of the final environmental impact statement.

Sincerely,

A handwritten signature in dark ink, appearing to read "William W. Lindsay". The signature is fluid and cursive, with the first name "William" and last name "Lindsay" clearly distinguishable.

William W. Lindsay, Director  
Office of Electric Power Regulation

UNITED STATES DEPARTMENT OF AGRICULTURE  
OFFICE OF THE SECRETARY  
WASHINGTON, D.C. 20250

OFFICE OF EQUAL OPPORTUNITY

JUN 13 1979

IN REPLY 8140 Supplement 8  
REFER TO:

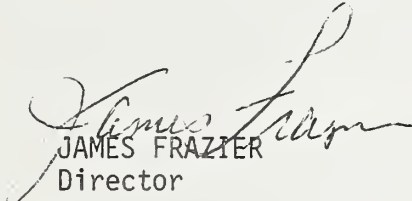
SUBJECT: Draft Environmental Impact Statement, Middle  
Creek Watershed, Pennsylvania

TO: Graham T. Munkittrick  
State Conservationist

THRU: Verne M. Bathurst, Deputy  
Administrator for Administration  
Soil Conservation Service

We review agency Draft Statements to assure that they adequately consider the effects of proposed actions upon minority populations. As noted on p.32, there are no minority residents living in the watershed.

Thank you for including this information in your Statement.

  
JAMES FRAZIER  
Director



**UNITED STATES DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**  
ENVIRONMENTAL DATA AND INFORMATION SERVICE  
Washington, D.C. 20235

May 29, 1979

OA/Dx61

TO: PP/EC - R. Lehman

FROM: OA/Dx61 - Douglas LeComte

SUBJECT: DEIS 7905.12 - Middle Creek Watershed Pennsylvania

General Comment

Since flood prevention is a major goal of the project, a brief description of the area's climate -- with the emphasis on flood-producing rainfall events -- would be appropriate. The frequency, intensity, and type of storm which produces flooding should be indicated, as well as the time of year such storms occur. Record rainfall amounts, in addition to mean amounts, could be included. If possible, specific rainfall occurrences should be related to flooding events.

Climatological data are available from the National Climatic Center, Asheville, N.C. 28801.





**U.S. DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**  
NATIONAL WEATHER SERVICE  
Silver Spring, Md. 20910

Date JUN 4 1979

Reply to Attn. of: OA/W2x2

To A/PP - R. Lehman

From  OA/W - Richard E. Hallgren

Subject: DEIS 7905.12 - Middle Creek Watershed, PA (Your memo of 5/18/79)

The draft EIS cites in section IV B1 (pg 16) the reduction in flood damages that will occur as a result of the planned structural measures.

In section V, Nonstructural Measures (pg 36) were mentioned but none included flood warning systems. In view of the stated annual flood damages of \$352,000, it is considered an oversight not to include a flood warning system as a companion item to structural measures or as a nonstructural measure as described in the enclosure.

Thank you for the opportunity to comment on the draft EIS.

Encl. (Flash Flood Warning System)





**UNITED STATES DEPARTMENT OF COMMERCE**  
**The Assistant Secretary for Science and Technology**  
Washington, D.C. 20230

(202) 377-3111 4335

June 29, 1979

Mr. Graham T. Munkittrick  
State Conservationist  
USDA Soil Conservation Service  
Box 985 Federal Square Station  
Harrisburg, Pennsylvania 17108

Dear Mr. Munkittrick:

The draft environmental statement, "Middle Creek Watershed Project, Snyder, Union, and Mifflin Counties, Pennsylvania," which accompanied your memorandum of May 9, 1979 has been received by the Department of Commerce. The statement has been reviewed, and the comments of the National Oceanic and Atmospheric Administration (NOAA) Environmental Data and Information Service, and the NOAA National Weather Service are forwarded. In addition, the following comments are offered for your consideration.

General Comment

Since this is a watershed protection and flood control project, the statement should include details of the floods and flooding that this program is intended to control. Tabular data on area rainfall, extent of past flooding, and specific instances of damages sustained should be presented. In addition a map of the present 100-year flood plain compared with the anticipated 100-year flood plain resulting from the project completion, should be presented. The project map (Appendix B) showing "Drainage areas controlled by structure" and red letters and arrows entitled "Flood Damage Reach" does not convey a clear picture of the "before" and "after" shape or extent of the 100-year flood plain.

Specific Comments

Illustrations, Page vii - Figure 3, "PA-639 Location Map" is not at page 7, nor is it elsewhere in the statement. Instead, page 7 shows a "Floodway Plan View," not listed in the table of illustrations. The error should be corrected.

Impacts on Flood Damage, Page 16 - The statement, at the 3rd paragraph from the bottom, that "Eighty-seven residences will be completely protected from the 100-year flood" (emphasis added) is misleading. Flood protection is a probability estimate; there can be no guarantee that the once-in-100-years flood could not occur tomorrow. Homeowners cannot expect "complete" protection against flooding.

Impacts on Plant and Animal Resources, Page 26 - The 6th paragraph on the page refers to the water quality at nine sampling stations. A table showing the water quality measurements would be helpful, and should be added.

Floodway, Page 36 - The page is blank in our review copy of the statement.

Thank you for giving us the opportunity to provide these comments, which we hope will be of assistance to you. We would appreciate 5 copies of the final environmental statement.

Sincerely,

A handwritten signature in cursive script that reads "Sidney R. Gallet".

Sidney R. Gallet  
Deputy Assistant Secretary  
for Environmental Affairs

Enclosures: Memo from: Richard E. Hallgren, NOAA/NWS  
Memo from: Douglas LeComte, NOAA/EDIS



DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE  
PUBLIC HEALTH SERVICE  
CENTER FOR DISEASE CONTROL  
ATLANTA, GEORGIA 30333  
TELEPHONE: (404) 633-3311

June 21, 1979

Mr. Graham T. Munkittrick  
State Conservationist  
USDA, Soil Conservation Service  
Box 985, Federal Square Station  
Harrisburg, Pennsylvania 17108

Dear Mr. Munkittrick:

We have reviewed the Draft Environmental Impact Statement (EIS) for the Middle Creek Watershed Project in Snyder, Mifflin, and Union Counties, Pennsylvania. We are responding in behalf of the Public Health Service.

The following comments are offered for your consideration in preparing the Final EIS.

Water Quality

A discussion of the project's effect upon the attainment and maintenance of applicable water quality standards for each affected watercourse or water body should be provided in the EIS. It is noted in the EIS that outlet water temperatures from Site PA-636 are expected to increase by as much as 12° F during the summer. A statement should be provided on how this temperature change will affect existing water quality standards (temperature, dissolved oxygen, etc.) for the proposed lake and the affected downstream areas. Since the discharge of surface waters may exceed applicable water quality standards for temperature, it may be necessary to design an outlet structure such that lake water from a cooler stratified layer could be mixed with warmer surface waters.

The eutrophication potential of Sites PA-636, PA-637, and PA-638 should be evaluated at various intervals after filling and addressed in the EIS. A discussion of the compatibility of the expected trophic status of each lake with the planned project benefits and the designated use classifications of the applicable water quality standards should be provided.

Fish cleaning facilities should be provided to control odor, pollution, and other nuisances from indiscriminate fish cleaning and disposal in the lake and along its shoreline.

Water Supply

We note that the proposed 24-acre lake at Site PA-638 will be used as a municipal water supply. Additional information is required in the EIS to



explain if treated lake water will comply with the National Interim Primary Drinking Water Regulations and if collection and treatment costs are economically competitive with other possible water supply alternatives.

Other potable sources of water in the project area should be addressed in the EIS. The restrictions to be imposed upon lake use, upstream watershed practices, dischargers in the watershed, and other measures to preserve the quality of the proposed lake for a water supply should be mentioned.

### Safety

It is important that the health and welfare of other boaters and lake users be taken into consideration in locating boat launching and berthing areas. The Department of Transportation Coast Guard Boating Statistics 1978 (COMDTINST M16754.1) can be referred to for information on boating accidents for insight as to what design and operational measures might be incorporated into the recreational facilities at the two lakes (PA-636 and PA-637) to reduce boating accidents. Interestingly, the 1978 boating accidents were generally due to collision with other vessels during cruising in lakes and involved the operation of open-outboard motorboats over 75 horsepower. Since the two lakes (PA-636 and PA-637) are fairly small, it may be appropriate to incorporate into the lakes' recreational plans restrictions on boat type, motor size, and use in certain areas of the lakes. The EIS should provide an estimate of how many boats the lake can safely accommodate with the lakes' planned activities.

### Vectors and Noxious Plants

We have reviewed the subject report for vectorborne disease impacts. Potential vector problems were not addressed in the EIS. The permanent nature of the impounded waters indicates that the reservoirs could produce vector mosquito problems that could require some control actions. Recognition of possible mosquito problems and the inclusion of a statement in the EIS which would allow for consultation with the State health department in order to deal with emergent vector problems, would appear appropriate for this project.

An arthropod and rodent control program should be instituted into the project's recreational plan. Recreational areas should be located along reservoir sections which have a low mosquito production potential. Water level management should be such as to minimize conditions favorable for mosquito production without interfering with the primary purposes of the reservoir.

Growth of vegetation in areas that are highly frequented by park users should be controlled to prevent infestations of ticks, chiggers, and other insects of public health importance. Poison ivy, poison oak, poison sumac,

and/or other noxious plants considered to be detrimental to health should be controlled in areas such as picnic areas, shelters, camping spaces, and other areas where potential and accidental exposure is high.

404 Evaluation and Protection of Wetlands

The EIS should include a summary of the Section 404(b) evaluation (40 CFR 230) performed by the Corps of Engineers for the impact associated with the construction of the project. The project's compliance with Executive Order 11990, Protection of Wetlands, should also be addressed.

Flood Plain Management

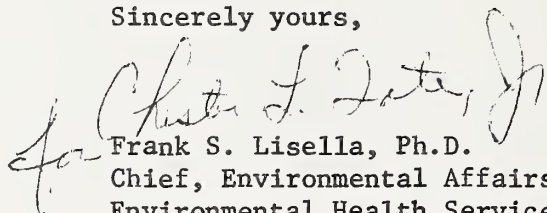
Compliance with Executive Order 11988, Flood Plain Management, should be addressed in the EIS.

Other

The feasibility of incorporating a very small hydroelectric power plant into the proposed dam works should be examined. The Corps of Engineers can be contacted for a feasibility assessment.

We appreciate the opportunity to review this EIS. Please send us two copies of the Final EIS when it becomes available. Should you have any questions regarding the comments above, contact me or Mr. Robert Kay at (404) 262-6649.

Sincerely yours,



Frank S. Lisella, Ph.D.  
Chief, Environmental Affairs Group  
Environmental Health Services Division  
Bureau of State Services





# United States Department of the Interior

OFFICE OF THE SECRETARY  
WASHINGTON, D.C. 20240

ER 79/468

JUL 13 1979

Mr. Graham T. Munkittrick  
State Conservationist  
Soil Conservation Service  
Department of Agriculture  
P.O. Box 985, Fed. Square Station  
Harrisburg, Pennsylvania 17108

Dear Mr. Munkittrick:

We have reviewed the draft environmental impact statement for Middle Creek Watershed, Snyder County, Pennsylvania and have the following general and specific comments.

## General Comments

Although the project involves construction of dams and control of erosion, the information on geology and soils provided in the draft statement is not adequate to evaluate potential environmental impacts. The statement should also include more specific information on existing floodflow and water quality characteristics of surface water sources and it should address the possibility of effects of impoundments on ground water levels. Steps to be taken in construction of wells for recreational areas and plans for periodic testing to assure drinking water of good quality for visitors should be at least briefly indicated.

Land for the project already has been acquired by the State and local sponsors and in-the-ground mineral resources (mainly stone) are essentially committed. The statement should make note of this.

## Specific Comments

### Page 2, Item 1.(e)

No information has been found on the geology of either of the two dam sites or on the type of earthfill or rockfill to be used for the dams. It is stated only that "Ample borrow material will be available at the sites."

Page 4, Paragraphs 1 and 2

It is stated that the emergency spillways for the dams will be excavated into rock on each abutment or on one abutment, but the type of rock has not been identified.

Page 16, Paragraph 1

Land treatment measures are planned to help stabilize eroding agricultural land, yet the nature of soil and its susceptibility to erosion have not been discussed. While it is acknowledged that proposed structural measures will contribute to increased soil erosion during construction, the materials that will be disturbed have not been described. Moreover, information provided on erosion control measures to be applied during construction is highly generalized, being confined to such statements as "Extensive erosion and sedimentation control measures will be used to minimize soil erosion and sedimentation" (p. 26, par. 7) and "measures to minimize this pollution will be included in the construction contract" (p. 28, par. 3).

Page 25, Paragraph 3

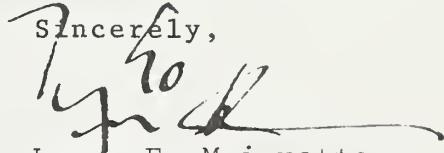
The only information on any specific soil condition is a brief reference to "upland sites with drier, well drained soils" (line 14), but neither the upland nor the bottomland soils have been described.

Page 29

It is unclear whether the "preliminary archeological and historic survey" included a field investigation. The final statement should briefly discuss the methods used for this survey work. If only a literature search, records check, or similar data gathering was involved, then in order to fully identify any threatened archeological resources that may be eligible for inclusion in the National Register (36 CFR 880.4), an archeological field survey that includes subsurface testing should be done in areas to be impacted by the proposed project. The results should be included in the final statement. The final statement should also include the views of the Pennsylvania SHPO on these matters, as well as copies of any Memorandum of Agreement developed concerning mitigation of adverse effects to the Gross Bridge, a covered bridge on the National Register.

We hope these comments will be of assistance to you.

Sincerely,

A handwritten signature in dark ink, appearing to read 'Larry E. Meierotto', with a long horizontal flourish extending to the right.

Larry E. Meierotto  
SECRETARY

Assistant



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION III

6TH AND WALNUT STREETS  
PHILADELPHIA, PENNSYLVANIA 19106

JUL 27 1979

Mr. Graham T. Munkittrick  
State Conservationist  
U.S. Department of Agriculture  
Soil Conservation Service  
Box 985, Federal Square Station  
Harrisburg, Pennsylvania 17108

Dear Mr. Munkittrick:

We have completed our review of the draft Environmental Impact Statement (DEIS) on Middle Creek Watershed project. EPA has no objection to the proposed action as described in the draft EIS, however, we believe it does not contain sufficient information to assess fully the impact of the proposed project. The draft gives us enough information to make a preliminary determination regarding environmental impact. The specific comments attached specify information either not included or unclear to us in the draft. This places the draft in our category generally referred to as LO-2; definition is enclosed. Our comments break down into seven categories listed below. In some cases the remarks are subjective while in others specific statements and procedures are called into question.

As mentioned in our letter of July 11, we are anxious to meet with you to discuss your cost/benefit analysis approach and philosophies. At the same time it might be a good idea to discuss the proposed Water Resource Council Regulations (F.R. Vol. 44, No. 102) and their impact on SCS/EPA relationships.

Thank you for the opportunity to comment on this matter. If EPA can be of further assistance please contact Mr. Robert Davis of my staff at 215-597-7188.

Sincerely yours,

John R. Pomponio, Chief  
EIS & Wetlands Review Section

Enclosure



COMMENTS  
Draft Environmental Impact Statement (DEIS)  
Middle Creek Watershed Project

Cost/Benefit Analysis

EPA, while an environmental Agency, is concerned with cost/benefit analyses for one primary reason. That is, environmental degradation of any significant magnitude is unjustified if a project's benefits do not clearly outweigh the costs. Therefore, we have the following questions and requests for clarification relative to cost/benefit analyses.

On pages IV and 8 we are pleased to see that the integrity of Middleburg is to be protected. We presume that economic useful life of the protected buildings and the building sites will match the longevity of the flood control system.

The cost figures on pages 15 and 35 do not appear to be in agreement. Are these supposed to be mutually reflective?

Many costs are externalized. On page 15 an amount of \$157,300 is to presumably come from the local populace. Has this been included in the total cost/benefit analysis? We also presume that the cost of preserving the covered bridge noted on page 29 is included in the cost category "Land rights and relocations." Is this true? It might be helpful to include a total and internalized cost breakdown reflecting the construction costs as well as O&M and user costs so that a clear picture of total costs is presented.

We realize that traditionally many costs of maintenance and operation are born by the user population. However, it seems logical to present such costs in the report so that a comparison between annual costs and benefits can be drawn. Pages 15 and 16 discuss these, but do not present a complete picture with regard to total annual costs, only maintenance of recreation facilities.

Water Supply

A principal benefit for Pa. 638 is water supply for Beavertown, as described on pages II, IV, 3 and 4. Would this be a supplemental supply or is it intended to replace the present source? If the latter is true, why is the present source being abandoned?

### Flood Control

We presume the dam mentioned on page 35 is the same one mentioned in paragraph 2 on page 27. What effect does this dam have on flooding downstream and will it ever be detrimental to the dike and associated work at Middleburg? Is it maintained in accord with SCS standards? This question is asked because the dam appears to be in a strategic location with regard to the downstream flood control plans.

### Land Use Changes

At the end of the first paragraph on page 4, the term "within the site" is used. Presumably this is included in the calculations for acreage whose uses are to be changed. But both here and on page 10 land use changes are implied and statements regarding these changes are vague. On page 10, for example, it is stated that borrow is to be taken from agricultural lands. We feel this will affect the land uses and deserves discussion. Land use changes in the floodplain and the floodways will also take place. What measures are to be instituted in these areas to prevent encroachment? Similarly, what encroachment preventive measures will be applied in Middleburg where the town will receive the protection from the 1% flood?

### Sediment Control

Information on pages III, 3, and 16ff describe the sediment control scheme. EPA requests the SCS present a more detailed total sediment and runoff picture for the watershed. This presentation should utilize information from the 1977 County and City book which describes a trend in farming that indicates a reduction in the number of farms. This reduction may mean a basic change in the farming picture for the county and in turn may call some of the land treatment measures into question.

Finally, with regard to sediment control, surface mining is a major source of sediment, but no mention is made of past or current coal mining in the watershed. If abandoned mines are located within the watershed these may be a considerable source of sediment. Some description of the extractable resource picture should be included in the EIS so that any anticipated mining will not overwhelm the runoff and sediment control programs or water quality as described in the draft EIS.

### Fish & Wildlife

Mention is made on pages 26 and 27 of a trout fishery downstream from Pa. 638. We assume that protection of this will accrue to the recreation benefits of the watershed. We are concerned, however, about the possible adverse affects of the impoundment construction activities and would like to see some reassuring details on measures to be used for trout fishery protection.

In the paragraph above discussing "Flood Control", we raised a question regarding a dam above Middleburg. Is this the barrier to fish migration mentioned on page 27, second paragraph?

A discussion of the habitat change on page 25 does not answer the question of relative habitat values. Will the disrupted terrestrial habitat be replaced by an equally valuable aquatic habitat?

### Wetlands Protection

No mention is made of any wetlands within the watershed that may require special attention or preservation.

# COMMONWEALTH OF PENNSYLVANIA



In reply refer to  
RM-S

DEPARTMENT OF ENVIRONMENTAL RESOURCES  
POST OFFICE BOX 1467  
HARRISBURG, PENNSYLVANIA 17120

BUREAU OF SOIL AND WATER CONSERVATION  
June 28, 1979

Mr. Graham T. Munkittrick  
State Conservationist  
USDA, Soil Conservation Service  
Box 985, Federal Square Station  
Harrisburg, Pennsylvania 17108

Dear "Munk":

The Bureau of Soil and Water Conservation in the Department of Environmental Resources has reviewed the draft environmental impact statement for the Middle Creek P.L. 566 project in Snyder County for the State Conservation Commission.

Staff assistance has been provided through the Bureau of Soil and Water Conservation in the Department of Environmental Resources to help the sponsors to meet their responsibilities. Cost-sharing has been provided through the Commission to acquire land, easements, and rights-of-way necessary for project installation. We are anxious to see a final EIS written and approved in order to complete this needed project.

Our review has not uncovered any major errors with regard to the environmental consequences of this project as stated in your draft document. Minor misstatements noted are as follows:

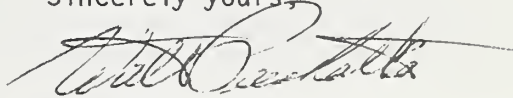
- On page 1 paragraph four it is overstated that Snyder Conservation District has been granted enforcement authorities for erosion and sedimentation control. An agreement has been signed between the Snyder district and DER allowing the Snyder District to make inspections of earthmoving activities on behalf of DER which could lead to enforcement actions by the Department of Environmental Resources under the Clean Streams Law.
- The first paragraph on page 38 describing the land use, population, and development patterns in Snyder County is misleading. Population centers along the Susquehanna River are not located in the Middle Creek Watershed such as this paragraph leads the reader to believe.
- Also on page 38, the fourth paragraph mentions the Flood Plain and Stormwater Laws passed in 1978. Basic administrative responsibility for the Flood Plain Law will be the PA Department of Community Affairs and the Department of Environmental Resources for the Stormwater Law.

Mr. Graham T. Munkittrick

June 28. 1979

We appreciate the opportunity to make these comments.

Sincerely yours,

A handwritten signature in dark ink, appearing to read 'Walter N. Peechatka', with a stylized, flowing script.

Walter N. Peechatka  
Director

WNP/tmn



**FIRST STAGE REVIEW**  
**Preapplication/Notification of Intent**  
**AGENCY REVIEW COMMENTS**

**INSTRUCTIONS:** To be completed by review agency and returned to State Clearinghouse. Check one or more appropriate boxes. Indicate comments below. Return copy 1, 2 and 3 to the State Clearinghouse. Retain copy 4 for your official records. Attach triplicate sheets if necessary.

**PART I: Declaration of Interest**

☐ No Interest Declared — Complete Part V and return copy 1 and copy 2 to State Clearinghouse.

☐ Interest Declared — Complete Parts II, III, IV and V and return copy 1 and copy 2 to State Clearinghouse.

**PART II: Identification of Agency Review Criteria (Agency plans, programs, policies and/or laws)**

**PART III: COMMENTS (Include results of preliminary contact made with applicant and suggestions for improving project proposal)**

**PART IV: Recommended State Clearinghouse Action (This action will not be honored by the State Clearinghouse unless Part II and Part III above have been completed)**

☐ Recommend Approval

☐ Request the opportunity to review final application.

☐ Recommend Disapproval

☐ Request the opportunity to review environmental impact statement.

**PART V: Certification**

Authorized Agency Signature

Agency

Date

## Transportation Issue #1

(Re: Item #7, Impacts on Properties, Roads, and Utilities, Page 29)

Item #7 indicates that all landrights for PA-636 (impoundment dam north of Beaver Springs) have been acquired inclding State highway flood easements and abandonments. A search of District 3-0's files indicated that such is not the case even though coordination between the sponsors of the Middle Creek Watershed plan and this Department extends back to at least 1961.

A legal agreement (#38504) was executed on June 5, 1967, between the PA Department of Highways and the Commissioners of Snyder County. This agreement covered the disposition of State roadways (L.R. 54025 and L.R. 54048) involved with site PA-636. Of note, the agreement specified certain design/operational features of the dam. Between 1967 and mid 1972, design revisions were made to the structure as follows:

<u>Item</u>	<u>1967 Agreement Elevations</u>	<u>Elevations as of 2/1/73</u>
Normal Pool	576.5	583.0
25 Year Frequency Storm Pool	586.5	596.5
100 Year Frequency Storm Pool (also Spillway Crest)	598.0	599.8
Top of Dam	Unspecified	611.4

It was the Department's finding that the changes in PA-636's design would cause more frequent inundation of the State routes covered in the 1967 agreement and cause additional flooding on other State roads. As a result, the 1967 agreement was declared invalid by the Department. Between mid 1972 and February of 1973, coordination continued between the Department and the Middle Creek Watershed sponsors to develop a suitable second agreement.

Early in 1973, through mutual agreement of the Department of Transportation and county officials, Snyder County agreed to assume responsibility for the affected portions of L.R. 54025 and L.R. 54048. Furthermore, it was determined that the sections of State highway between elevations 596.5 (25 Year Pool) and 611.4 (Top of Dam) should be covered under a flood easement as required by the PA Department of Environmental Resources. In essence, the easement would stipulate that the Department of Transportation would retain jurisdiction over these sections of roadway (listed below) while the county would agree to reimburse the Department for damages/maintenance resulting from the impoundment of floodwaters.

<u>Route</u>	<u>Description</u>
L.R. 54024	from 200 ft. east of L.R. 54025 eastward 500 ft.
L.R. 54025	from 600 ft. east of T-570 eastward 1,800 ft.
L.R. 54026	from 2,500 ft. east of T-574 eastward 100 ft. and from 900 ft. east of T-572 eastward 500 ft.
L.R. 54027	from 600 ft. south of L.R. 54026 southward 300 ft.; from 1,600 ft. south of L.R. 54026 southward 100 ft.; and from L.R. 54025 northward 100 ft.

However, a formal legal document based on the 1973 preliminary agreements was never drafted. Between 1973 and the present, little additional coordination has occurred. Therefore, the Department of Transportation finds there are no formal agreements or easements in effect for PA-636.

Draft EIS Item #7 on Page 39 further indicated that project PA-640 (dike in Middleburg) will involve flood closure provisions at the L.R. 25 (U.S. Route 522) structure over Middle Creek. District 3-0 of the Department of Transportation can find no evidence of prior consultation on this item. Should the end anchorages for the metal shields be placed on Department right-of-way or should modification to the bridge be required, the design must be approved by the District. The operation of the closure device must be covered by a Highway Occupancy Permit, or depending on complexity, other legal agreements.

#### Transportation Issue #2

##### (Re: Item #2, Recreation Facilities)

Items #2 (a) and (b) provide annual recreational visit estimates for sites #636 and #637 of 47,000 and 120,000 respectively. While the draft EIS contains no further discussion on visitor access the Department of Transportation assumed the vast majority of visitors will use various State highways in the vicinity of these dam sites for at least a portion of each trip.

Assuming a highly seasonal usage due to the "summer" type recreational facilities to be provided, noticeable secondary impacts could affect a number of State highways. If each vehicle held 2 visitors and 75% of the visits occurred during the summer season (say trout season which runs from mid April to early September) and 50% of that usage occurs on weekends (about 21 during the same period), average daily traffic on the local State highways could increase up to 400 vehicles in the vicinity of PA 636 and up to 1,100 vehicles near PA 637. U.S. Route 522 and PA Route 235, which provide east-west and north-south regional access, could carry up to 1,500 more vehicles per weekend summer day. These increases represent from a 50% to a 200% increase in average daily traffic.

The District believes an assessment of such traffic impacts as road capacity, safety, and increased maintenance should be made. If instances occur where the existing State highways are incapable of handling the increased volumes, mitigation measures should be considered.





COMMONWEALTH OF PENNSYLVANIA  
PENNSYLVANIA FISH COMMISSION

Division of Fisheries  
Robinson Lane  
Bellefonte, PA 16823

814-359-2754

June 6, 1979

Mr. Graham Munkittrick  
State Conservationist  
U.S.D.A. Soil Conservation Service  
Box 985, Federal Square Station  
Harrisburg, PA 17108

Re: Draft Environmental Impact Statement  
Middle Creek Watershed  
PL 566

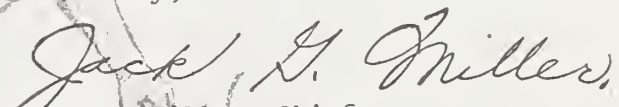
Dear Mr. Munkittrick:

The subject draft environmental impact statement has been reviewed by the Pennsylvania Fish Commission and is basically satisfactory with us. There are several comments we wish to make.

1. Page 14. It is stated that the Troxelville Access Area will include boat launching facilities. Since this area is below the dam, where and how can such facilities be included?
2. On PA 636 the Pennsylvania Fish Commission has requested a change in the outlet structure to facilitate management practices of lowering and raising the recreational pool level for esocid spawning. This is not discussed in the environmental impact statement.
3. On PA 637 the Pennsylvania Fish Commission has requested the addition of a low level release to provide cooler water below the dam. This change should be included in the environmental impact statement because of its effect on the creek below the dam.

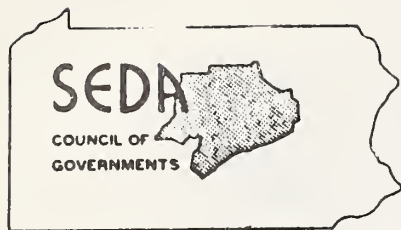
We thank you for the opportunity to review and comment upon the draft environmental impact statement and hope to continue to cooperate in any way possible with this project.

Sincerely,

  
Jack G. Miller, Chief  
Fisheries Environmental Services

JGM:dms

cc: Delano Graff  
Bruce Hollender  
Charles Kulp



# SEDA - COUNCIL OF GOVERNMENTS

TIMBERHAVEN, RD 1 • LEWISBURG, PENNSYLVANIA 17837 • 717 524-4491

TO: Mr. Graham T. Munkittrick, State Conservationist

FROM: Alan B. McCracken, A-95 Coordinator *ABM*

DATE: June 7, 1979

SUBJECT: Areawide Clearinghouse Review - Draft Environmental Impact Statement from U.S. Department of Agriculture, Soil Conservation Service for funding of the Middle Creek Water Shed Project.

SEDA-Council of Governments has completed its review of the above referenced proposal according to Federal Circular A-95 Review Guidelines. Information concerning your application has been forwarded to local municipalities and other organization who may be interested in making comments or recommendations concerning the proposed project. Comments concerning the project returned to SEDA-COG by municipalities or agencies, if any, are attached to this letter.

The project does not appear to conflict with known local and regional plans and programs. We know of no objections to the use of federal funds for this project. Therefore, this letter certifies that you have fulfilled your responsibilities to the Areawide Clearinghouse under Federal Circular A-95 and may proceed with federal applications submission requirements.

Thank you for the opportunity to review your project. Please contact me if you have any questions concerning our review of your project.

cc: Snyder County Conservation District



July 9, 1979

Mr. Graham T. Munkittrick  
State Conservationist  
U.S. Soil Conservation Service  
Federal Building  
Harrisburg, Pa. 17120

Dear Mr. Munkittrick:

RE: Draft Environmental Impact Statement, Middle Creek Watershed Project.

The following are comments: on the draft EIS

(1) Impacts on Flood Damage (Page 8).

The flood plain management ordinance either used or being developed by local governments do not "prohibit new flood plain development" as stated. Rather these ordinances seek prudent development adjusted to flood risk and installed according to minimum standards.

The completed project can be expected to encourage development within the flood plain, particularly in the area protected by the dike/wall at Middleburg. In another sense, the project will decrease the lateral extent of the regulatory flood plain, the 1% or 100 year flood plain, and thus remove land use controls in these areas.

The catastrophic potential of levee-wall systems should over topping occur should be included in the EIS.

The use of the National Flood Insurance Program as a means to offset the financial burden of flooding should be incorporated as an ongoing non-structural measure that needs to be sustained. Accurate flood plain mapping in the Middle Creek Watershed suitable to determine flood insurance rate is needed, and should be noted.

6. Impacts on Archaeological and Historical Resources. Characteristics of the archaeological site should be described in the EIS.

8. Economic and Social Impacts. The term "flood free" should be deleted and one expressing a reduction in flooding potential or probability be inserted instead. The use of flood insurance to offset flood damages and emergency expense costs should be incorporated in the strategy available to flood plain property owners to deal with the financial burden of flooding.

V. Alternatives

Nonstructural Measures (Page 36)

A flood warning system will be necessary throughout the watershed, even if the proposed project is built as planned.

Please consider these comments in preparing the final EIS.

Sincerely,

A handwritten signature in black ink, appearing to read "Thomas P. Bresenhan". The signature is fluid and cursive, with the first name "Thomas" and last name "Bresenhan" clearly legible.

Thomas P. Bresenhan  
Program Analyst/Land Use

TPB/kh



Snyder County Planning Commission

P.O. Box 245, Middleburg, Pennsylvania 17842 Tel. (717) 837-0691

June 12, 1979

Mr. Al McCracken, A-95 Coordinator  
SEDA-Council of Governments  
RD #1, Timberhaven  
Lewisburg, PA 17837

Re: Draft Environmental Impact Statement (EIS)  
Middle Creek Watershed Project

Dear Mr. McCracken:

This Commission has reviewed the above-cited application in accordance with OMB Circular A-95, as requested by you on May 18, 1979.

The proposed multi-purpose facility will provide:

- a. flood control, allowing up to 80% of past damage from flooding to be avoided.
- b. new water-based recreation at two lakes.
- c. the possibility for an increase in the local water supply.

The draft EIS demonstrates, and this Commission agrees, that:

- a. aquatic life will not be endangered or altered, since the Middle Creek is already classified as a warm water stream.
- b. no historic places will be destroyed. An existing covered bridge will be moved to a new recreation area.

This Commission is in agreement with the findings of the EIS, and will be happy to comment on the completed application.

Should there be any questions about this, or should you need clarification of the above, please do not hesitate to contact me at your earliest convenience.

Sincerely,

Harvey J. Cummings  
Planning Director

HJC/mea

cc: C. Huff, SCS  
A-95 SCPC file  
Middle Creek Watershed SCPC file



# SUSQUEHANNA RIVER BASIN COMMISSION

1721 North Front Street

Harrisburg, Pennsylvania 17102

July 11, 1979

From the Office of the  
Executive Director

Mr. Graham T. Munckittrick  
State Conservationist  
Soil Conservation Service  
Box 985  
Federal Square Station  
Harrisburg, PA 17108

Dear Mr. Munckittrick:

Thank you for your letter of May 9, 1979 transmitting a copy of the Draft Environmental Impact Statement for Middle Creek Watershed Project, Pennsylvania, for our review and comment. The following staff observations or questions are offered for your consideration:

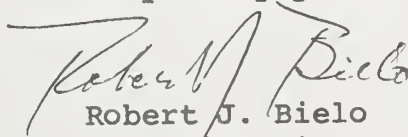
1. The SRBC Comprehensive Plan adopted in December 1973, included the two remaining dams proposed for construction but did not include the floodway and dikes planned for the protection of Beaver Springs and Middleburg, respectively. These project features will be recommended by staff for inclusion in our Comprehensive Plan in the near future.
2. The project's costs presented in the draft report show a 1973 price base. It would be appropriate to update project costs to current price levels.
3. Project costs for the implementation of the remaining features including the two dams, floodway, dike, and recreation facilities are presented as a lump sum total. We suggest these costs be separated by individual feature to permit a comparison among the various alternatives, including nonstructural flood damage reduction techniques, presented later in the report.
4. The treatment of the nonstructural measures alternatives as part of this investigation does not appear to be very extensive. The current emphasis on nonstructural alternatives suggests a more comprehensive treatment and we question why the evaluation did not include any portion of the watershed downstream of Middleburg.



5. The discussion on economic and social impacts appears somewhat optimistic in referring to the potential for generating \$33,800 in wages through installation, operation and maintenance of the flood protection project. This does not seem to be a substantial amount in terms of its impact on the local economy. The construction and operation of the existing dam (PA-637) does not appear to have made a marked contribution to the local economy other than that temporarily experienced during construction.
6. The discussion on short-term uses versus long-term productivity states that "the project will enhance the land resources of the watershed because the area reserved by the dams, spillways, and flood pools will be open space protected from development." Such land reservation is obvious but the multi-purpose concept of the remaining projects (impoundments) could well generate additional residential and/or commercial development in this vicinity due to the very nature of the projects.
7. The SRBC staff conducted a Type 15 Flood Insurance Study in a reach of Middle Creek downstream of Middleburg. Through continuing contacts in the flood insurance study program, whereby we are coordinating basic information with other study contractors, we have learned that your office has revised the existing conditions hydrology for Middle Creek. Indications are that the revisions have increased the flood discharges in this area by as much as 30% over those discharges applicable to the watershed project in question. Should recently revised hydrology be applied in a reevaluation of the project or has it been determined that the original hydrology developed for this project shall continue to prevail? We understand that the basic differences that have been identified between the SCS hydrology for this project and that which SRBC originally generated in connection with the FIA study will be presented to HUD-FIA for resolution. Anticipating contact from HUD-FIA with either or both of our agencies, we would be available to discuss this matter with you at some mutually convenient time.

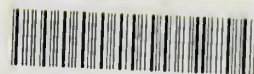
We greatly appreciate the opportunity to review and comment on this much needed project and wish to suggest our availability to discuss any or all of the points raised above in more detail if you so desire.

Very truly yours,



Robert J. Bielo  
Executive Director





R0000 889658



R0000 889658